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ITEMS OF INTEREST.

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Index to the Items of Interest for 1896.

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ITEMS OF INTEREST.

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ORIGINAL COMMUNICATIONS.

ORIGIN OF COHESIVE GOLD FOIL AND CONTOUR FILLING.

James Leslie, D.D.S., Cincinnati, Ohio.

In that able and comprehensive address delivered by Dr. L. D. Shephard, President of the World's Dental Congress in 1893, he states: "That the most distinctive discovery of the decade (1850 to 1860) and most momentus in its influence was that property of gold, which, previously considered detrimental, was now to be welcomed as its most valuable characteristic—cohesion. The introduction of crystal gold and the discovery of the cohesiveness of freshly annealed foil laid the foundation for the new era in operative dentistry. The description and illustrations of operations with crystal gold in the essay of that venerable and respectable nestor still with us, Dr. W. H. Dwinelle, published in 1855, might still answer for an essay of to-day. Here was the renaissance of operating dentistry. Here was the dawn of the new era of restoration, the parting line between antique mutilation and disfiguration, and the subsequent devotion to beauty and typal form. It was the first grand advance in practice." I fully agree with the doctor in his estimate of the discovery, but respectfully dissent from his statement of its origin or discovery.

When was cohesive foil introduced, and by whom, and who was the first dentist that applied the cohesive property as a factor in filling cavities in teeth? If a true answer can be given to these questions and sustained by indubitable evidence, it will correct many wrong statements that have been and are still made by parties who undoubtedly believe what they say at conventions, and publish in our journals, but who are ignorant of the facts in the history of cohesive gold foil and contour filling. In giving the history of cohesive gold, I desire to state all that has been claimed by eminent practitioners in its discussion for forty years, including the last claim and defiant challenge of that eminent den-

tist, Dr. Dwinelle, made as late as May, 1890, whose numerous and remarkable inventions and appliances in aid of the practice of dentistry all honorable men delight to honor. In the discussion of this theme there appeared in the *Dental Cosmos* during the year 1869, an article from Dr. Amos Westcott, stating that he was the first to discover this property of cohesion in gold foil, and applied it in the operation of filling teeth. Dr. Louis Jack in reply, dissents from the claim of Dr. Westcott, stating that he had never heard of or seen an operation performed with that form of gold till he saw it done by Dr. Robert Arthur, and refers to his excellent treatise on the "Use of Adhesive Foil," published in 1857. Those claims surprised dentists in the West, who for many years previous to that date had been and were using what was well known by the first name it received "sticky" or adhesive foil. The first public claim I made in being the discoverer and introducer of cohesive gold foil was in a paper I read at a convention held at St. Louis in 1875, "On the Properties of Gold Foil as Adapted for Contour and other Fillings," which was published in the *Missouri Dental Journal*, and copied by the *British Journal of Dental Science*, February, 1875. I had deferred making a public claim till I though the last claimant had appeared, but another has developed in the person of that distinguished operator, Dr. W. H. Dwinelle, and he is the last and most pronounced, ending with a challenge that cannot be ignored. I quote from the *Dental Cosmos*, May, 1886. Speaking on gold foil he says:

> Occasionally a goldbeater would, by over-refining, produce a "sticky" foil, as he termed it, regarding it as a misfortune. Not till Dr. A. J. Watt and myself were engaged, some thirty years ago, in experimenting for the purpose of developing crystals, *was it known* that it was one of the inherent and peculiar characteristics of gold that when it is reduced to a state of absolute purity it is cohesive—*and that was the first time a systematic method of producing cohesive gold was known.*

Again I quote from Dr. Dwinelle in the *Cosmos*, May, 1890, and this is the last claim I know of.

> A word in reference to Watts crystal gold. *Because Watts crystal gold has an existence, contour fillings are possible*, and *they were never possible before it existed.* In the great principle that was developed in the production of crystal gold, that absolute pure gold is always cohesive, and that one of its inherent characteristics is that it is adhesive. We had presented to us a plastic material which we could build up into independent forms; and so the birth of contour filling came by virtue of Watts crystal gold, because in making that discovery others followed, and adhesive gold came out of it. I *defy anybody* to show an instance wherein adhesive gold foil was manufactured systematically and continuously before Watts crystal gold was discovered.

This challenge I accept eagerly, and cherish the thought that when the eminent gentleman who made it becomes aware of the

indubitable testimony which I submit, he will realize that he was laboring under an eminent mistake, and that I have fairly met his defiant challenge.

In introducing my claim, I premise by stating that my brother Andrew M. Leslie and myself were practical gold-beaters, and began business in the year 1838 in Cincinnati, Ohio. As a branch of our business we engaged in the manufacture of gold-foil, and had to refine all the gold we used. At that time there were only two or three men who made gold foil in the United States, and such was the popularity of Marcus Bull's foil no other maker thought of competing. It was thoroughly non-cohesive, and quite red in color. The mode of its manufacture was quite a secret.

We could not produce it then, but by our careful method of refining we secured the opposite, a remarkably cohesive foil. I read with great interest all that the claimants for the discovery of this property had written, and deemed it necessary that I should gather what evidence I had, as I had a claim also for the discovery, antedating all others; and now I will detail facts just as they occurred in the year 1839.

I was on a visit to Louisville, Ky., and visited Dr. N. Clute of that city. I introduced my gold, and my theory that it might be made useful in filling teeth. I showed him foil that was just as non-cohesive as Bull's foil he was in the habit of using; but when I showed him how he could anneal foil, demonstrating the wonderful property produced by heat, in that which was a non-cohesive foil of my manufacture, it was a revelation that excited his wonder. He grasped my thought, and with a confidence in the potency of the new power developed, he immediately put it in practice, filled a cavity as I annealed it, and for the first time in the history of dentistry a contour filling was made. In getting my evidence, I concluded to write Dr. N. Clute, knowing that he could not forget that most interesting occasion to himself as well as to me. I wrote him giving him an account of the rival claims, and reminded him of our meeting and mutual surprise of an event that did occur eighteen years before Dr. Arthur's treatise had appeared, and sixteen years before the claims were made by persons named in this paper. I received from Dr. N. Clute, in answer to my letter, the following reply:

COXSACKIE, June 15th, 1870.

JAMES LESLIE.

Dear Sir:—I have just received yours of the 13th inst., and in reply to your statement that you manufactured adhesive gold foil in the year 1839, I

can and do testify, as I used no other in my practice when it could be had. I also, about the same time, had it manufactured in Pittsburg, but I sent back many ounces because it was not adhesive: and I attributed the quality to its purity and to the perfect annealing it had received. Yours was so sticky that the leaves could not be separated if they but touched each other. When I left Louisville, five years ago, I retired from the profession in which I labored forty years with some profit to myself, and, I hope, to my patrons and to the profession. I am now living on the banks of the beautiful Hudson, where I shall probably spend the evening of my days, cheered by the recollection that I have been faithful in the discharge of my duties. If I can do you any service, let me hear from you. Yours,

N. CLUTE.

The original is in my hands.

Thus, for sixteen years before Dr. Arthur and his treatise on "Adhesive Foil," or Drs. Dwinelle and A. I. Watt had written about adhesive foil, the article had been "systematically and continuously" made and used by Dr. N. Clute; also, by M. Rogers, W. M. Hunter, John Allen, W. H. Morgan, George Reely, James Taylor, and others who had the genius to perceive its value and the skill to use it.

In the year 1842 my brother, Andrew M. Leslie, matriculated as a student in the first class of the Ohio College of Dental Surgery, and graduated in the first class of that institution, whose graduates are found in successful practice all over the globe. He became a demonstrator and professor, and in later years editor of the *Dental Review* he established in the city of St. Louis, and in each of these departments, united to his eminent skill as a practitioner, he secured the esteem of the profession everywhere. I had a desire to be in the same class, but funds in prospect could not afford it; but what he learned during the day we both studied at night. We were interrupted one night by his dear wife, who was curious to see our study in the garret. She was shocked by the sight of a skeleton, and we had to find other quarters for the study of the bones. When he opened an office I assisted him; and no man ever was more delighted or tested more fully the cohesive property of gold we had both observed when neither of us had any practical knowledge of dentistry. My knowledge of dentistry I obtained mainly from him, and in later years the trustees conferred on me, unsolicited, the degree of D.D.S. That eminent man is not here to testify in his own behalf and mine; but if the spirit of a just man made perfect was permitted to speak on earthly things among men, his voice would declare to you that I am speaking the truth.

The claims of Drs. Dwinelle, J. Taft and others, that crystal gold possessed the welding property superior to gold foil, was opposed by Dr. A. M. Leslie (*vide American Journal of Dental*

Science, Vol. V, page 239), who stated that "we must claim to having, in 1854, first brought before the profession the fact that gold, in the cold state, would weld." This fact was drawn out by the position taken by the advocates of crystal gold, who claimed it possessed the welding property which foil did not.

At the annual meeting of the Valley Dental Association (see *Dental Register*, Vol. II) the following discussion occurred:

Dr. Blakesley was an agent sent to introduce the Watts crystal gold foil.

Dr. Blakesley said: He uses Watts crystal gold foil for filling. He understood they had a peculiar mode of refining it, which others did not possess; never could build out before he got Watts foil or sponge gold.

Dr. James Taylor thought building out gold to restore the form of the tooth was frequently carried too far for the safety of the filling, and unnecessary for the preservation of the tooth. He had done some of it for glory, but when does it pay. He thought that in back teeth it should only be done when antagonizing was very much needed; he had been using adhesive foil for several years, made by James Leslie, of our city (Cincinnati), and had no need of anything more adhesive. He alluded to the experiments made a year ago before the Association by this gentleman, in which he explained the mode of annealing foil, and demonstrated the adhesive property of pure gold when in the form of foil. Dr. Taylor also showed the finger-ring made by Dr. A. M. Leslie from scraps of his adhesive foil without melting or soldering, and which was held together by the adhesive property alone of the gold; he had now worn it constantly for one year, and it was evidently as good as the day he put it on. Dr. Blakesley asked if he had seen it made.

I now conclude my historic evidence on cohesive foil by quoting some parts of a most interesting "Report on Dental Progress," prepared by Dr. A. M. Leslie, published in the *American Dental Journal*, Vol. V, page 239, 1855:

"It will probably be remembered by those who were present at our last annual meeting (1854), that when this point (adhesiveness of foil) was under discussion, the writer briefly alluded to the property possessed by gold of uniting firmly or welding by simple pressure. * * * * He also stated that gold foil could be made, without any difficulty, which would possess the adhesive property when annealed that simply the weight of one leaf laid on another would forever unite them at the point of contact.

Fifteen years ago just such foil was made and supplied by the firm alluded to, to a prominent member of the profession in the West; and while he would use no other, other operators they supplied preferred another kind. He accounted for it by saying they knew not how to use such as he preferred."

The testimony now submitted proves that from the year 1839 I systematically and continuously made cohesive gold till 1880, when I gave up that branch of my business, so that instead of being indebted to Drs. W. H. Dwinelle and A. J. Watt for the discovery or introduction of cohesive foil, the profession had it many years before either of them knew anything about it, and it is remarkable that cohesive foil still maintains its high position as a filling material, notwithstanding the excessive malleting it has received, and that, too, with small pointed pluggers.

I finish my evidence by quoting from Dr. James Taylor, the beloved and preëminently the father of dentistry in the West, that he used adhesive foil in 1850, five years before the claims of Dr. Dwinelle was made (see *Dental Register*, Vol. IV, page 15). * * * * "Well do I remember the first filling I attempted to introduce, with my foil cut into strips and with foil such as recommended by one of our best dentists. The foil was rather hard, yet adhesive, so that when folded it would stick together; it made a hard plug and bore a fine polish."

The history I have given establishes the following facts:

First. That I made and introduced cohesive gold foil in the year 1839, and that Dr. N. Clute, then of Louisville, Ky., was the first dentist to make a contour filling.

Second. I made it systematically and continuously over forty years; that it was always cohesive when made, and became non-cohesive by exposure and age; but becoming instantly cohesive by annealing.

Third. That it was used in that way by the most prominent dentists in the West, some of whose names I mention.

Fourth. That it was referred to by Dr. James Taylor at society meetings in 1850 and 1857 as having been used by him for several years.

Fifth. Dr. A. M. Leslie states he knew it to have been made by me fifteen years before crystal gold was introduced.

The conclusion is inevitable and just, that Andrew M. Leslie and James Leslie are the first discoverers and introducers of cohesive gold foil to the dental profession. In the mouth of two or three witnesses every word is established.

ORIGIN OF ANESTHESIA.

Dr. G. Q. Colton, New York.

At the grand celebration of the discovery of anesthesia by and in honor of Dr. Wells, which took place in Philadelphia on the 11th of December, 1894—the 50th anniversary since the discovery—they made quite a lion of me, reminding me of a line in Shakespeare,

"Some men are born great; some achieve greatness, and some have greatness thrust upon them."

At the close of the reading of the first paper, which was on "The History of the Discovery of Anesthesia," the Chairman—the Hon. Mr. Garretson, I believe—said: "I perceive there is a gentleman present who gave the gas to Dr. Wells for the first tooth ever extracted without pain; I refer to Dr. Colton, of New York. I know you all want to see him, and I will ask him to come on the stage."

Well, I went up, made my bow, and blushed all the blush there was in me. I was not aware then that I was worthy of any such notoriety; nor have I entertained any such "flattering unction" since.

I had studied medicine, but having little or no practice, I went to California in 1849 to dig a fortune from "the bowels of the earth." I took a small box of medicine for the company I was with, in case of need. When up in the mines, a man came to my tent in the night and wished me to extract a tooth. He was a big strapping fellow. I told him I was not a dentist, but I had a large, straight pair of forceps. I looked at his tooth, a big upper molar. I said I could not possibly draw that tooth. "Well," said he, "I want you to try. I'll pay you whether you get it out or not." I put the forceps on, and gave it a terrible wrench, and went on wrenching and pulling, using all the strength I possessed; and then gave it up. "Well," said he, "I am satisfied; you have cleared the ache out of it anyhow." And so, as I didn't get the tooth out, I only charged him half price, $8.00.

My next experience in tooth drawing was in my office. It was a holiday, and I was there alone. The bell rang, and two ladies presented themselves, one having her face bundled up. I told them there was no one there to draw teeth that day. I looked at the tooth; it was a lower wisdom, with a good crown, and standing all alone. I said I would do the best I could, and if I didn't get it out, she would be no worse off than she was then.

The lady that came with her, assisted in giving the gas. When sound asleep and snoring, I stepped in front with the forceps. I meant to be very careful and not mangle the gum. Well, the tongue bothered me, but finally I got the instrument on the tooth as I thought (I was not quite sure), and wriggled away. I was so long at it, that the lady began to recover, and I took the instrument out as a failure. The tooth dropped out of the forceps on her dress. I had drawn it and didn't know it. This was my second and last experience in tooth drawing.

The lady said I was a splendid tooth-drawer, and went off as happy as a lark. People sometimes express surprise, when I tell them I am nearly 82 years of age. It reminds me of the words of old Adam to Orlando, in the play of "As You Like It."

> "Though I look old, yet I am strong and lusty,
> For in my youth I never did apply
> Hot and rebellious liquors in my blood;
> Nor with unbashful forehead woo
> The means of weakness and debility;
> Therefore my age is as a lusty winter,
> Frosty, but kindly."

In answer to some queries Dr. Colton adds the following:

I never attempted to extract but three teeth in my life. I was educated for medicine, not dentistry. I lectured on chemistry, natural philosophy, etc., and gave exhibitions of the nitrous oxid gas. It was at my exhibition given in Hartford, Conn., on the 10th of December, 1844, that Dr. Wells made the discovery of anesthesia, and the next day he tried it on himself for the extraction of a tooth, for which I gave him the gas. Dr. Biggs extracted the tooth. I instructed Dr. Wells how to make the gas, and then went off on my lecturing business.

Dr. Wells used the gas all of one year (1845) in his practice. He then went to Europe on account of failing health. During his absence in Europe Dr. Morton brought out ether; first experiment with ether was on the 30th of September, 1846. Chloroform came in about a year later.

Dr. Wells returned to this country the latter part of 1847; and died the 24th of January, 1848. Up to this time no one had used the gas in dentistry save Wells. After the death of Wells, Dr. Morton set up the claim that nitrous oxid was no anesthetic at all; that insensibility could not be produced by it. There was no one to disprove this statement, and the gas remained a dead and forgotten thing, till I revived its use, and demonstrated its value in 1863. Dead and forgotten for twelve years. I was

traveling around the country lecturing on telegraphy, etc. I often mentioned the experiments with Wells, but could never induce a dentist to try the gas.

In 1849 I went to California, carrying a little box of medicine with me for my company, among other things I put in a pair of forceps, and this I used in my attempt to draw a man's tooth up in the mines, and miserably failed.

Governor Biley appointed me the first Justice of the Peace for San Francisco, where I dispensed (with) justice for a time, and till the State constitution came into power, I came home with a small fortune, and lost it all in bad investments. I then resumed the laughing gas exhibitions. In June, 1863, I gave a private entertainment in New Haven, Conn., and gave a full detail of Wells' operation, and said I could never get a dentist to try the gas. Dr. J. H. Smith, who was present, said he would try it if I would administer it. I went to his office and gave the gas to his patients for three weeks and two days (of course we advertised the wonderful discovery), and in this time we extracted a little over 3,000 teeth. Thinks I "this is a better business than lecturing to a miserable account of empty boxes." This led to the establishment of the Colton Dental Association, on the 15th of July, 1863. Of course I had to hire a dentist for extracting.

I certainly did give the gas to Dr. Wells for the first tooth ever drawn without pain.

Dr. W. H. Gillett, of Cincinnati, Ohio, sends us the following advertisement. I hope there are but few such dentists among us:

"Free teeth extracted free. For a limited time I will do all dental work cheaper than it is done anywhere else in the city. I guarantee all my work to give perfect satisfaction, and ask the people of the West End to remember me when they need any service. "*Dr. Eugene Swope, Dentist.*"

Dr. Gillett says of Dr. Swope: "This Dr. Swope had merely matriculated in the Ohio College, and had spent a few months only in different offices trying to learn. The State Board of Dental Examiners were informed of this before they awarded him his certificate."

Is it possible such a man can have legal standing in the profession? Yet Dr. Gillett assures us the State Board acknowledges he has passed a successful examination. It seems as though there is a screw loose somewhere. ED. ITEMS.

OUR NATIONAL DEVELOPMENT.

Ours is a land of fullness and not of famine. Providence has dowered us with matchless opportunity and the world's evolution unfolds before us the crowning destiny of mankind. The merchant princes, even of middle age, before me have within their own business lives seen our young republic pass and outstrip all the old nations, hoary with the moss of a thousand years. In the two decades from 1870 to 1890 the three mighty powers of Great Britain, France and Germany, all combined, with their 125,000,000 people, gained in wealth $30,000,000,000, while the United States alone, with its 60,000,000 people, gained $338,000,000,000.

The examination of national earnings tells the enkindling story of triumphant advance. Great Britain is estimated to earn about $6,400,000,000 a year, France $5,000,000,000 and Germany about the same, while the United States earns over $12,000,000,000, or two-thirds as much as all the other three put together. If we were not such magnificent spenders how we should astonish ourselves in stupendous savings. But spending makes consumption, and consumption makes production, and as we are the greatest consumers so we are the greatest producers in the world. To-day we earn two-thirds as much as the three great powers of Europe combined. Soon we will leap beyond them. From 1870 to 1890 Great Britain increased her earnings $1,000,000,000 a year, and France the same, but our republic expanded hers by $5,000,000,000 a year.

England has certainly in the past been the industrial beehive of the world. In 1860 the product of our manufactures was but little more than half of hers. In 1890 it more than doubled her output. Her increase was $1,200,000,000, while ours was about $7,000,000,000. Our expansion in industries was more than twice that of England, France and Germany put together. Through this amazing development we manufacture over one-third of all that is manufactured in the world, and we use and consume the bulk of this colossal proportion among our own people, who are the best paid, best housed, best fed, best dressed, best schooled people on the face of the globe.

In the great race of nations the powers of the Old World are heavily handicapped, while the lithe, supple, sinewy young giant of the New World strides forward free and unhampered. Their debts are piling up; ours are melting away. Their taxes are rising; ours are falling. Their expenditures are frightfully swelling;

ours are relatively declining. Their productive forces are stripped for arms and armaments; ours at the plough, the forge, the loom and the exchange—the tools of wealth and not of waste.

England's taxes are 10 per cent of her earnings, France's 13 per cent, and Germany's 10½ per cent, while ours are only 5 per cent. England spends one-sixth of her local taxes and one-twelfth of all her revenues for poor relief, and only one-seventeenth for schools. The United States spends one-sixth of all her national and local income for schools, and the demand for poor relief is only a beggardly item. The contrast is the key of the future.

And we are only at the threshold of our development. Most of the growth I have briefly portrayed has come within twenty years. Who shall grasp the advancement of the next twenty or thirty years, or picture the dazzling destiny of the next century? Perhaps half the men within the sound of my voice will live to see our republic an overtowering nation of a hundred millions of the most enlightened, the most energetic, and the most progressive people God ever created. Our spirit, if not our flag, will rule the hemisphere. The Nicaragua canal, constructed by American capital and owing allegiance to American control, will open through the continent the highway of the sea, and New York, wrestling the financial scepter from London, will stand like another Venice of the earlier and narrower days, as the focus and emporium of the world's wide commerce between the Orient and the Occident.

Charles Emory Smith.

The faulty conditions in our schools are a result of the advancing demands of the higher civilization of the age. The number demanding education exceeds the financial ability of the communities to handle them properly, and so they are crowded together without sufficient space or ventilation, and crammed with lessons, that they may be the sooner educated and get through with their studies, to make room for those who are clamoring for their places. As teachers, as physicians, as citizens, we should make every effort to correct these faults; we should insist on properly lighted and well ventilated school rooms; and one other important point we should insist on—breathing spaces, such as spacious playgrounds near the school. The effect of the deprivation of these things is recorded on the teeth of our patients, and as dentists we have a right to be heard in the matter

W. X. Sudduth.

HOW CHOLERA WAS SUPPRESSED IN HONOLULU.

An article in a recent number of the *Independent*, by Rev. Dr. Sereno Bishop, shows how perfectly controllable this fearful disease is when intelligent measures for its suppression are employed.

For three weeks the Board of Health, ably supported by the capable citizens and physicians, labored with the utmost energy and skill to subdue the growing epidemic. In spite of their best directed efforts it continued to increase, and to appear in new localities. Though soon eradicated from Iwilei, where the first cases arose, four other centers of infection had been created. From one of these seventeen cases were taken, when the hamlet, somewhat isolated, was destroyed and the people removed. The cause of the failure of preventive measures became clear. Of the earlier sixty-two cases, thirty-one were not reported to the health authorities till near death or after death. The more debased class of natives, among whom the disease chiefly prevailed, were in bondage to their witch doctors and dared not receive the aid of foreign physicians, who, as they were taught, were seeking to poisoning them. Under existing provisions it was impossible to get cholera cases reported in time to isolate exposed persons before they had scattered, or to make the necessary disinfection of the premises and excreta, or to disinfect or destroy clothing before it had been carried off or washed in neighboring streams. It made all the difference between suppression and wide conveyance of infection whether the officers heard of a case within six hours or not till twenty-four.

No amount of police vigilance or activity could reach this difficulty. Native superstition and prejudice erected itself as a fatal obstacle. In this strait a measure was devised which conquered the obstruction ; it was a severe and despotic one, creating a strong and close guardianship over the persons and dwellings of every man, woman, and child in the city and district of Honolulu. The city was divided into twenty-one districts under chief inspectors, and these into two hundred and fifty-one sections, each in charge of a sub-inspector, who twice a day visited every dwelling, and saw, or positively learned the condition of, every person belonging on the premises. These inspectors, if they saw reason, entered every room and examined every corner of the premises. Wealthy and well-to-do people cheerfully submitted to this invasion of privacy, for the sake of conquering the pestilence which threatened ; there was, indeed, no resistance to it. This organ-

ized inspection went into operation on September 6th, and lasted for fifteen days, though it had stamped out the epidemic in ten days. After it began, only four out of twenty-three cases failed to be promptly reported and thoroughly cared for in good time. In five days the cases had declined from seven to three a day, and in a week to an average of one a day.

The inspectors and sub-inspectors all worked very faithfully and without pay. The same was true of a sanitary committee of ten leading gentlemen to whom they reported, who labored night and day in aid of the Board of Health. In the infected districts inspectors had to use great vigilance. The determination was very strong to evade discovery. The deluded people thought it a matter of life and death. To be taken to the cholera hospital was certain death.

It is probable that a majority of the cases were persons of unsound health, belonging to the lower class of natives. We are made to realize what we had only remotely heard of, that Asiatic cholera is a disease of terrific malignancy and most rapid fatality. Happily, it is perhaps the most easily prevented of all the communicable diseases by well-directed isolation and disinfection. It is not transported in the air and seldom is given by actual contact, if precautions of cleansing are used. As a rule, the germs enter the mouth directly in food or drink, and boiling heat destroys those germs.

I have been making an estimate of the proportion of the dental profession that belong to dental societies in the United States. I think I have as correct a list as any one can have of the membership of the different dental societies in the United States. There are less than 5,000 dentists belonging to societies out of 17,000. It has been a query in my mind somewhat why this is so. The Illinois State Dental Society has been doing good work for nearly thirty years, going from one place to another in the State. The membership of this society is more liberal with its energy and earnings, that it may give to others, than a great many other societies, religious or otherwise, in the profession or out of it. This will be found to be the case, and yet I have often wondered why in the State of Illinois we do not have six or seven hundred permanent members. For my part, I do not know where I would have been had it not been for this society. I owe more to it than to any other one cause for whatever success I have attained.

J. N. Crouse.

NITROUS OXID GAS.

G. Q. Colton, of the famous Colton Association of New York City, says: There are, no doubt, many dentists who manufacture impure gas, or administer pure gas after it becomes stale. There is this important fact to be considered. There is no injury produced by the inhalation of stale gas, only it fails to produce the effect desired. And if the gas is so impure that its inhalation would prove fatal, it cannot be breathed at all—it would be coughed up at once. When the gas is pure, it has no more taste or odor than the common air, and is perfectly agreeable to the lungs. I suppose that, in showing patients how I wish them to commence to breathe the gas, I inhale, in the aggregate, twenty gallons myself every day. There is no reaction following the inhalation of the gas. In this respect it is unlike all other stimulants. And this, simply because it acts on the blood, and not on the substance of the lungs or other organs. Consumptive patients will often feel stronger for days after inhaling it, because it supplies to the blood that element—oxigen—for the lack of which they are growing weaker and weaker. The good effects, however, are only temporary.

Where neuralgic pains arise from a low vital or unoxigenized condition of the blood, the gas affords instantaneous relief. This fact—and it is a fact—has not yet engaged the attention of the medical profession.

Of what is nitrous oxid, or laughing gas, composed? It is composed of precisely the same elements—oxigen and nitrogen—as the common air, only the proportions are different. In the air we have (in round numbers) one-fifth oxigen and four-fifths nitrogen. In this gas there is half oxigen and half nitrogen, or by volume, one of oxigen to two of nitrogen. Oxigen is the life-giving prinple of the air, and in this gas we have more of it; a person lives a little faster while under its influence.

Chloroform and ether act as sedatives, and depress the action of the heart, running the pulse down from 70 to 20 or 25 beats to the minute; and this, because they cut off the necessary supply of oxigen. The laughing gas, on the contrary, acts as an exhilarant, as by supplying an extra supply of oxigen to the lungs, the pulse is increased 15 to 20 beats to the minute. The former agents carry the patient down towards the point of death; the latter up to increased life.

I suppose I am safe in saying that, in the use of chloroform, one death has occurred in every 1,000 times it has been adminis-

tered. I have given the gas 168,000 times without such an accident. And I doubt if there has ever been a well authenticated case of death caused by the gas, or a death in which there was not some other cause sufficient to produce the result.

Although my connection with this great discovery was incidental, yet I think it will be admitted that I was the occasion of the discovery, and that but for me it would not have been made; certainly not at that time. And is it too much to claim that the world is practically indebted to me for the anesthetic use of the nitrous oxid gas, having revived and demonstrated its value after it had been abandoned and forgotten for the space of fifteen years?

I leave the subject to the impartial judgment of the profession and the public.

SOME MEDICO-LEGAL POINTS IN MALPRACTICE.

The following points with regard to a physician's liability in suits for malpractice are given in the *General Practitioner*:

1. A physician is guilty of criminal malpractice when serious injury results on account of his gross ignorance or gross neglect.

2. A physician is guilty of criminal malpractice when he administers drugs, or employs any surgical procedure, in the attempt to commit any crime forbidden by statute.

3. A physician is guilty of criminal malpractice when he wilfully or intentionally employs any medical or surgical procedure calculated to endanger the life or health of his patient, or when he wilfully or intentionally neglects to adopt such medical or surgical means as may be necessary to insure the safety of his patient.

4. A physician is civilly responsible for any injury that may result to a patient under his care, directly traceable to his ignorance or his negligence.

5. A physician is expected by the law to exhibit in the treatment of all his cases an average amount of skill and care for the locality in which he resides and practices, further than this he is not responsible for results, in the absence of an express contract to cure.

6. A physician is not relieved of his responsibility to render skilful and proper treatment, or reasonable care and attention, by the fact that his services are gratuitous.

7. A physician is not obliged to undertake the treatment of

any case against his will, but having once taken charge he cannot withdraw without sufficient notice to allow his patient to procure other medical assistance.

8. A physician having brought suit and obtained judgment for services rendered, no action for malpractice can be thereafter brought against him on account of said services.

9. A physician is relieved of all responsibility for bad results in connection with the treatment of a case when there can be proved contributory negligence on the part of the patient.

We cannot fail to recognize the enormous amount of poor timber there is among men who call themselves dentists, and who swell this list of names that is brought before us as practicing on the mouths of patients throughout the United States. How are we going to elevate the character of the profession by putting up a Chinese wall about us and endeavoring to keep out practitioners, as has been done by a great many States in this country by the laws which have been enacted, some of which will not bear judicial inquiry? The tendency of this country is to increase the general education of the people, and as it increases so will they learn the value of taking care of the dental organs. As it is, the present number of dental schools, with the number of matriculates they have, is totally inadequate to supply the proper number of dentists demanded in the United States. The question as it presents itself to me is not that there are too many good dentists, but that there are too many poor dentists. That is the question we have to combat. Can we make better dentists out of men who have become wedded to their methods of practice? It is of no avail to prescribe the oath that was formerly administered to every man who received his diploma. That will not aid us among the large mass of men who have their *clientele*, and go on year after year destroying the teeth that come into their offices. What will improve dentistry will be the establishing of better dental institutions than we have to-day. It is not our place to find fault with any number of men who wish to found a college and connect it with some university or some permanent institution, and wish to put it on a plane beyond that of those who are competitors in the field of learning. That spirit should be applauded by this Association, for it is the only way in which better men can be turned out, the only stimulus that will make the other institutions come up to a higher standard of dental requirements. *Dr. Rhein.*

WHAT IS ELECTRICITY?

That is a query often asked, but never answered with proof. Work says:

There are theories, many of them. It is evidently something of which we cannot take a part; we cannot cut a piece of it off and subject it to analysis; nor can we pour a little of it into a bottle, for future study and contemplation. It is like the wind, its effects can be measured; its force, strength, and quantity can now be calculated to a very nice degree. Still to liken it to the wind, it is a tremendous power, blowing, as it were, without moving, two ways at once along all parts of its path; giving off a halo of magnetism at right angles to that path everywhere. One of the nicest theories, perhaps, is the one that considers electricity a "condition" of atoms brought about by chemical action, as in a battery cell, or by what might be called a severe irritation of the magnetic halo, as in a dynamo; and by other means, such as heat and friction. What this condition is, is beyond us; it may be a violent rotation, or it may be an equally violent vibration of atoms; probably the arc light would prove it to be a vibration. But, as no man has seen an atom at any time, not even with the most powerful microscope, it is difficult to say. Friction in some form or other is present, as heat is produced before burning or destruction takes place. Even the filament of the best incandescent lamp falls to pieces; it can but work for a time.

There are a great many young men in the profession who make the mistake of working too much. I have worked a great many nights and Sundays, in addition to working all day, and I found my health was giving out. Dentists work entirely too long hours, and they take too little exercise and recreation. I know one or two men in the profession who are working hard all day and experimenting, and we will have a longer list of those that are dead of this society, if they do not stop it. In my business I make it a practice to close every Saturday afternoon, it does not make any difference who comes or calls, and I find I make as much money in the summer as in the winter. I have a great deal better health, and have a good time. I think if the dentists adopted this practice as a class, closing their offices on Saturday afternoons and getting out into the open air and imbibing a little ozone, it would be better for them. *Ira B. Crissman.*

CURRENT THOUGHTS.

BUSINESS EDUCATION FOR PROFESSIONAL MEN.

Dr. C. B. Blackmarr, Jackson, Mich.

Professional men usually do everything they have to do in a very unbusinesslike manner. Whenever you see a successful professional man, you will notice that all his business is attended to with promptness and dispatch. Dentists and patients who have the most to do, and those who do the most business, are those who keep their appointments the sharpest.

A lazy or slow professional man usually thinks because he has plenty of time, his patients have.

I think generally young men, as they are sent to colleges, are impressed with the idea by others that if they only get their professional education, that is all they have to do. So many young men think that their education alone should bring them patients without any further exertion.

I have several young men on my mind now who have not succeeded in their profession, owing entirely to their unbusinesslike manner of conducting their practice.

One, for instance, could never be found in his office during the hours stated on his door. Neither was there any word left where he was nor when he would return.

Another young man agreed on his office door to open at 9 A. M. He never was known to keep his agreement. Only a good guesser could tell why. I often wish that young man would notice whether business places—like banks, etc.—open any more regularly. If that young man ever made an appointment with a patient, it would usually be to come in some afternoon next week; or, if he did actually mention a day and time, he always kept his patient waiting half an hour or so. The patient, of course, not keeping the next appointment so closely.

A man who won't keep his appointments in one thing, won't in others. If he don't keep his office hours, he won't pay his debts when he says he will. A man who is not honest enough to keep appointments, will not fill a tooth or do anything else honestly.

I have gone into professional men's offices during office hours and found the reception-room open, vacant, and quiet as death. No one to attend, nor to tell when the professional man would be in.

How long do you think a bank or business place would exist on such principles?

A professional man suffers proportionately as much. A traveling dental agent once told me that he went into one of the most elegantly-furnished dental offices in this State, and waited forty-five minutes without being waited on by any one. He knew some one was in the laboratory or operating-room, because he could hear them talking. Patients came in and would not wait so long, and went away disgusted. That dentist quit practicing on account of lack of patients in a few years.

A professional man, to be financially successful, must please the patients. He must satisfy them in his promptness, his fees, in his operations, in his appearance, manner, etc. Professional men and their methods are a continual puzzle to the business men. Their basis of professional fees is a query to them. How a physician or dentist has a right to treat abscesses, tumors, etc., month in and month out, with no apparent benefit, and to charge as though they were successful, is a mystery. *Ohio Journal.*

DENTAL HEMORRHAGE.

Dr. Truman W. Brophy, Chicago.

The application of hot water—as hot as can be borne—is excellent in hemorrhage, having a most advantageous effect in closing the vessels. It is the impression of some of our profession that warmth will promote the flow of blood. It is true that tepid water will do so, but if the water be used as hot as can be borne, while the blood-flow seems to be more excessive for a time, the vessels will soon contract and the hemorrhage cease.

The administration of ergot, as has been described, has its advantages. It has long been known to be a potent agent in the arrest of hemorrhage.

The use of gallic acid is also advantageous; but tannin, while certainly of great value, is no better, perhaps not as good as the subsulfate of iron; not the perchlorid, for it is an escharotic, and will sometimes do a great deal of damage. We shall find excessive hemorrhage more frequently where the patients are addicted to the excessive use of alcoholic stimulants. Those of large experience will agree that men who drink to excess will have a greater flow of blood after the extraction of a tooth than those who do not. This is due to the action of the alcohol on the fibrin of the blood. We do not get the fibrin in the blood to form the

clot. If we can succeed in forming a clot, we can usually stop the flow of blood, for that is nature's hemostatic, the fibrin forming a net-work and preventing the further escape of blood from the part. To promote the formation of this clot, to aid nature in arresting the flow, we want to place something to temporarily stop the flow.

In hemorrhage of the mouth, the best possible position for the patient is upright, as thus we get the benefits of gravity. If placed with his head down, the hemorrhage is greater, for we have not the benefit of gravity. Blood will flow down hill, the same as water will.

In excessive hemorrhage from the socket of a tooth after its removal, if you cannot arrest it by simply dusting the surface with the subsulfate of iron, the most potent of all local applications for the treatment of hemorrhage of this character; plug the cavity. Perhaps the best thing for this purpose is pink gutta-percha. Make a soft plug, dusting the cavity well with the subsulfate of iron, and then thrusting the gutta-percha, while yet soft, down in the socket, and allowing it to extend far enough above to be ligated over the top of the gutta-percha, thus holding it firmly down in the socket; or, if the occasion seemed to require it, allow it to stand up above the other tooth; then bringing the jaws together, the opposing tooth coming in contact with the gutta-percha, holds it down in place. Then, by adjusting a bandage, fix the jaws so that they can not open. Pressure is always valuable in the treatment of hemorrhage, and in no place is it more valuable than in the arresting of hemorrhage resulting from the extraction of a tooth.

It seems that the hemorrhagic diathesis is found frequently to prevail in some families, and in these you generally find systemic disease, or a weakened condition of some kind. In such you need to approach the removal of the tooth with a great deal of care.

Cosmos.

Never put wet borax on hot teeth as it is liable to crack the teeth. I greatly disapprove of the too general use of cross-pins by dentists. In my practice I use the so-called straight pins exclusively except in some special cases of bridge work, as I believe they are much stronger and less liable to break. In choosing artificial teeth select bicuspids and molars with the long lingual cusps. For clasp metal I use gold alloy with platinum, 16 to 1, or a pennyweight of platinum to an ounce of gold.

L. P. Haskell.

ANESTHESIA *vs.* ASPHYXIA.

S. A. Aykroyd, Kingston, Ont.

Read before the Eastern Ontario Dental Association.

Life is a phenomenon which as yet has not been satisfactorily defined. I asked the Professor of Biology in Queen's University, "What is life?" After several days he replied: "I can't answer your question." Life has been expressed by Savory as "A state of dynamical equilibrium." Life, however, does not stand alone; it is but a special manifestation of transformed force. Anesthesia has been variously defined. A definite understanding of what is meant by it is of no small importance to those whose mission it is to relieve pain and save life.

Webster says: "An anesthetic is that which produces insensibility." Our own Dr. Teskey says: "Anesthesia is deprivation of the sense of feeling from any cause." Surely such definitions cannot be scientific, for if they are, then a club, a rope, or a cannon ball would be an anesthetic, and death itself anesthesis. Dr. Thomas, of Philadelphia says: "Anesthesia is an unconscious condition produced by the inhalation of various drugs, the forces of life being maintained in the meantime." This is a more comprehensive definition, but still we are not satisfied. Dr. Hayes, in the *Dental and Surgical Microcosm*, from which I take the liberty to quote freely, says: "Esthesia is a condition of sensibility, but to realize sensation the force and functions of life must be continued."

Anesthesia is the opposite of esthesia, and is a condition of insensibility, and consequently in this condition there must also be in continuance the force and functions of life. Therefore the correct definition, according to Dr. Hayes, is: "Anesthesia is a physical condition in which the force and functions of life are in continuance under modifications whereby absensation is produced." This, it seems to me, comes nearer to a scientific definition than any other I have seen. The force of life is free oxigen, or rather, according to recent discoveries in science, electricity is the great force of life, and oxigen is the carrier of this electricity.

Dr. W. B. Richardson, an English physiologist, has conducted experiments showing that pure oxigen becomes devitalized by repeated inhalations; that in breathing the oxigen had undergone some change unknown to the chemist, and that if the oxigen be electrically charged it is revitalized and will again support life.

The chief functions of life we are interested in during anes-

thesia are circulation and respiration. To properly understand the science of anesthesia, we must recognize the double circulation in every animal, the one dependent on the other. Arterial and venous circulation is as dependent on neural circulation in the nervous system as life is dependent on the functions of life. The brain is the heart of the nervous system, and it might be designated the animal electric storage battery.

From the basic element free oxigen animo-electricity is generated by the pneumogastric glands of the lungs and the cerebral glands of the lungs and the cerebral glands of the brain, and stored in this storage battery to be sent out through the motor nerves as a force to move the organs of the body. This circulation through the nervous system brings back to the brain the greater portion of the electricity, through the sensory nerves, and thus information and impressions are received from the material world by the mind or spirit of man.

Interrupt or arrest this circulation in the nervous system, and you suspend sensation and the force and functions of life, and then you have the first stage of death. It is obvious then that a true anesthetic must contain sufficient free oxigen to fill this storage battery with animo-electricity, or nerve vital fluid, that the functions of life may not be interfered with. In administering an anesthetic, death can only be caused by either asphyxia or by shock. Shock is produced by the mind or by the intended anesthetic agent, or by both acting simultaneously.

What is asphyxia, and how is it produced? Blood which contains a normal proportion of oxigen excites the respiratory center, and consequently the respiratory muscular movements are normal. A deficiency of oxigen gives a condition of muscular movements called dyspnea (difficult breathing). When respiration is stopped by interference with the passage of air to the lungs by supplying air devoid of oxigen, a condition ensues which passes rapidly from the state of dyspnea to what is termed asphyxia, or suffocation, which quickly ends in death.

The ways by which asphyxia may be produced are numerous; for example, by prevention of the due entry of oxigen into the blood either by obstruction of the respiratory passages or by the introduction of gas devoid of oxigen, or of a gas containing oxigen which is not free, and, consequently, a proper interchange in the blood cannot take place (a gain of oxigen and a loss of carbonic acid).

The symptoms of asphyxia are: Violent action of the respiratory muscles and somewhat of all the muscles of the body, lividity

of the skin and all other muscular parts; the veins become distended and the tissues gorged with blood, convulsions and insensibility, which is quickly followed by death. The conditions which accompany these symptoms are: (1) Interference with the passage of the blood through the pulmonary blood-vessels. (2) Accumulation of the blood in the right side of the heart and in the systemic veins. (3) Circulation of impure blood in all parts of the body.

The cause of these conditions and the manner in which they act, so as to be incompatible with life, may be briefly considered: (1) By the violent and convulsive action of the expiratory muscles, pressure is directly made on the lungs, and the circulation through them is proportionately interfered with. This is the direct cause of the accumulation of blood in the right side of the heart. (2) The vaso-motor center, stimulated by blood deficient in oxigen, causes contraction of all the small arteries, with increase of arterial tension, and as an immediate consequence the filling of the systemic veins. The increased arterial tension is followed by inhibition of the action of the heart, which, contracting less frequently and gradually enfeebled also by deficient supply of oxigen, becomes over distended by blood which it cannot expel. At this stage the left as well as the right cavity is distended with blood. The ill effects of these conditions are paralysis of the muscles of the heart by over-stretching, venous congestion and consequent interference with the function of the higher nerve-centers, especially the medulla oblongata. (3) The passage of non-aerated blood through the lungs and its distribution over the body are events incompatible with life for more than a few minutes. The rapidity with which death ensues in asphyxia is caused by the effect of non-oxigenated blood on the medulla oblongata, and through the coronary arteries on the muscular substance of the heart.

Experiments have been performed on the lower animals, and it has been found in the dog, during simple asphyxia, that is by simple privation of air by plugging the trachea, that the average duration of the respiratory movements was four minutes five seconds. The average duration of the heart's action was seven minutes eleven seconds, recovery not taking place after the heart ceased. Thus we see that asphyxia is a physical and a pathological condition, radically differing from that of anesthesia.

In anesthesia the force and functions of life are in continuance under modification, by which absensation is produced by medico-

chemical agents, narcotizing the muscular tissues and the nerve filaments, thereby interrupting the neural current in the censory nerves. In asphyxia the force and functions of life are suspended or abrogated, and absensation is produced by the deoxidation of the blood, thus producing insensibility by preventing the generation of nervo-vital fluid and its circulation in the sensory nerves. The anesthetic agent must have sufficient free oxigen to properly support combustion and sustain life. An asphyxiant must be deprived of free oxigen or must not have sufficient to properly support combustion and sustain life. Oxigen, chemically combined with any other material element, will neither support combustion nor sustain life.

Therefore, nitrous oxid gas (N_2 O) will no more sustain life than carbonic acid gas, or nitrogen gas, or olyphiant gas, or any other inert gas. While it is maintained that N_2 O will support combustion by applying a lighted taper or a piece of heated charcoal, the fact is lost sight of that there is not heat enough in the human body to decompose the two chemical elements and set the oxigen free, and that it is the free oxigen and not the nitrous oxid gas that supports combustion.

Robert Marston, Lancaster, England, writing in the ITEMS OF INTEREST, in substance says: "To suppose that nitrous oxid is an anesthetic is to assume that it either plays the part of a toxic compound radicle, in the vito-chemical equations of the body, or else that its disassociated elements separately participate in the play of affinities, but, if nitrous oxid disported itself as a toxic compound radicle, its narcotic power would assert itself, as that of chloroform, ether and other narcotics, though atmospheric air were freely admitted with it to the lungs, a result which practitioners know is impossible of attainment. On the other hand, if nitrous oxid became chemically split up during the corpuscular changes, arterialization of the blood would in them inevitably ensue with abnormal energy, owing to the greater proportion of oxigen which nitrous oxid N_2 O contains, as compared with the proportions of oxigen and nitrogen found in common air N_4 xO. That this arterialization does not take place is sufficiently proved by the characteristic lividity of gas patients and other indications.

"Physiological effects are incompatible with the supposition that nitrous oxid is an anesthetic; appearances distinguish it as a negative asphyxiant.

"When nitrous oxid comes to be regarded as a negative asphyxiant, it will then be understood why it has the reputation

of being the safest of all so-called anesthetics. The prevailing opinion that it is a narcotic, whose peculiar action distinguishes it so distinctly from the dangerous compounds of its class, appears irrational when the diffusibility and cumulative tendency of all respiratory narcotics is relatively considered. During that kind of anesthesia which results from oxigen starvation, all the co-existing conditions are relatively connected; their deflection is uniform, and represents a string of alternated causes and effects, whose tension to rebound with reparative coöperation so soon as the swerving power of the asphyxiant is removed, constitutes that ignored cause which distinguishes the safeness of nitrous oxid from the ungovernable capriciousness of every other tabulated anesthetic.

"The absence of oxigen causes the accumulation of natural products and carbonic acid, which have a toxic action on the nerves, obtunding their sensibility. When chloroform, ether, or other anesthetics are used, the result is different; toxic asphyxiants have a stronger affinity for the complex molecules of nervous tissues than for the crude and comparatively elementary substance of the circulation. Thus they directly attack the fundamental principles which, subservient to the first cause, create and control all the phenomena of life, sometimes paralyzing the vital endowments, even while the respiratory changes are, to all appearances, ordinarily taking place."

Though deaths are rare from nitrous oxid, being only one in a million, let us remember, to obtain anything like complete insensibility with it, we must push the patient dangerously near the death-line, and that no anesthetic agent should be administered without continual caution and intellectual familiarity with conditions, and the admission of plenty of free oxigen or atmospheric air.

The time is coming when we shall be able to understand the physics of the breath of life, or of the oxigen of respiration, which is also the oxigen of combustion; how the inrush of oxigen, by way of capillary gates of the lungs and the corpuscles of the blood, to the tissue-cells of all parts of the system, carries a ceaseless volume of vital energy; how this animating and life-maintaining energy is nothing less than electricity of absolute dynamic strength and sureness—every breath, according to its size, a definite quantity of vitalizing, heating, and sustaining energy, and how the flow and charge of this energy, in all parts of the system, will maintain functions and operate organs which it has, in fact, created. *Dominion Dental Journal.*

THE WORK OF THE BODY.

Dr. A. H. P. Leuf, Philadelphia.

The work of the body is of two kinds, the mechanical and the psychological. The former is due to the active muscular expansion and contraction, causing the movement of hard structures, like the bones, and of soft parts of the body, as the skin of the face. The other is evidenced by mental action, especially that which is idealistic or abstract, as it is voluntary, disinterested and subserves no directly useful purpose, such as supplying food to the organism.

Reproduction requires two elements and these are the ovum and fecundating material. The ownership of either one of these constitute sex. The ovum belongs to the female and the fecundating element to the male. Contact of these two elements while living, and under circumstances favorable to continued existence while together, forms the only condition of successful impregnation and reproduction.

We breathe for the purposes of furnishing our cells with oxigen and relieving them of carbonic oxid (carbon dioxid). The blood current is the medium by which this is accomplished, as is nourishment. Just as we have the food prepared in the digestive apparatus before it is carried to the cell brood, so also does aeration and oxidation take place in the respiratory apparatus. The blood vessels, except capillaries, do not absorb their nutriment directly from the passing blood, but receive it from the minute ramifications of vessels that branch off like little twigs from the vessel itself and run on its surface for a very short distance and then dip down between its coats to furnish it with its own contents. Essentially the same system prevails in the digestive tract. The digested food is in the stomach and intestines, but is not absorbed directly to nourish these structures. It first passes into vessels and through the heart, lungs and heart again before the organs that prepared it get their supply. This process may be likened to the manufacture of food in large factories, which, though prepared by the workmen in the building, is not consumed by them except after being purchased in the regular market.

The complexity of our bodies is more seeming than real. More careful study than is commonly given to this subject will reveal that the closeness of relation and intimate connection of our various parts, instead of adding to the complexity, actually simplify

the anatomical structure and physiological processes. It has often been held that the compactness of our mechanism was due to the necessity for economizing space, else we might grow to twice our present height. There is no warrant for this supposition for several reasons. The tallest men and women are built proportionately just as compactly as the smallest of their kind. The massive elephant is as compact in his proportions as is the little mouse. Again, there is plenty of space in nature to accommodate beings much larger than those which now exist. There is no necessity for economy in space to such an extent that nature could not afford to accommodate human beings having an average stature of sixteen or twenty feet as well as five feet six inches. There is, moreover, a difference of fully thirty per cent in adult human stature at the present day. Some are over six feet, while others are hardly over four feet in height.

Respiration and circulation are inseparably blended. They harmonize with each other and with other parts of the body, as, for instance, the abdominal movements. It is a mistake to account for the coincident abdominal contraction and thoracic expansion, and *vice versa*, on purely mechanical principles. The deciding or guiding factor is the central nervous system. It is wrong to suppose that we naturally only expand the chest through an active nerve center, and that this expansion causes in a purely mechanical way eitherbulging or retraction of the belly. The nerve centers cause both actions at the same time, either, if necessary, going on rhythmically without the other. This has been proved by Triplett, who severed the chest from the abdomen, but without injuring the spinal column, and then plainly observed the rhythmical and complementary alternate contraction and relaxation of the chest and abdomen. He at the same time proved an alternating high and low pressure in the belly during other movements. The abdominal movements cause alternate rhythmical compression and relaxation of its contents. This periodical compression forces toward the heart the flow of venous blood through the large veins of the abdomen, for it cannot recede because of the valves in the veins. The same alternate compression aids digestion by moving the food and hastening absorption, for we all know that absorption is hastened by pressure. Liver circulation and digestion is particularly improved by the complementary thoracic and abdominal movements. The alternate compressions and relaxations of the liver greatly aid the portal circulation, and hence increase the activity of the liver. A torpid liver is a sluggish one, and many

such can be best overcome by deep and rapid breathing, such, for instance, as follows brisk running.

The pressure of gas in the small intestine has a useful purpose. We know that albuminoids do not osmose readily through animal membranes, and the mucous membrane being an animal membrane, much surprise was expressed at one time by physiologists as to how the food passed into the intestinal walls and blood vessels. It is, and was then, well established that albuminoids pass through animal membranes under pressure. It is just at this juncture that the presence of gas in the intestines is beneficial. The intestine has three coats, an internal or mucous, an external or serous, and a middle or muscular. Between the mucous and the muscular coats is found a ramifying network of blood and lymph vessels, and nerves. The free surface of the intestinal mucous membrane is studded with numerous villi or teat-like processes. These are to increase its absorbing area. Suppose some liquefied albuminous food in the small intestine. It is ready for absorption. It is mingled with intestinal gas. The muscular coat contracts. This compresses the gas and increases the intra-intestinal pressure without bruising the delicate mucous membrane. The air acts as a soft elastic cushion. If there is too much gas the intestine becomes unduly distended and this causes uneasiness. This uneasiness leads to a spasm of the muscular coat in some narrow area, and the result is a marked band-like constriction of the tube at one place, giving rise to a sharp, grasping, griping pain, continuing during the constriction. This is colic.

The production of heat is dependent on chemical and physical causes, all of which are largely furnished by the processes of respiration, circulation and digestion; the remainder may be said to come from voluntary work of all kinds.

It is the business of the nervous system to complete this mechanism by being its regulating automatism. Respiration, circulation and digestion cause and keep up the bodily temperature. The work of these apparatuses is remitting in character, and hence there is not uniform production of heat. Still the body temperature is maintained at a practically uniform standard. This is variously given at from 98½ degrees Fahrenheit to 100 degrees Fahrenheit. The difference depends on how and at what part of the body the record is taken, being highest in the rectum and lowest in the axilla. The heat production can be lessened, even at will, is at once evident when we recollect that respiration and circulation are under our control as far as being active or passive

is concerned ; and digestion is altogether so, for it requires voluntary action for us to ingest food. There must be a method for disposing of all excessive heat production. This is also voluntary as well as involuntary. Voluntary, as evidenced in the various methods of keeping cool when we feel the involuntary method to be inadequate. The involuntary method consists in the direct radiation of heat from the body as well as in its abstraction by the evaporation of the perspiration. When the natural means for the disposal of surplus animal heat is overtaxed, the body temperature rises and the central nervous system feels the change. This causes a depression of the circulatory, respiratory and digestive processes, and consequently a lessening of heat production. This is the normal way. In speaking of abnormal conditions further on more will be said on this subject.

The rôle of the nervous system in the mechanism of the body is important, as it is the great connecting bond between all its parts. Its actions are characteristic in being reflected. In physics we say of reflected light that the angle of reflection equals the angle of incidence, and this same principle may be applied in a figurative sense to the operations of the great nervous system. Essentially this consists of a ruling or controlling centre with two sets of nerves, one afferent, conveying impressions from the periphery to the center, and another efferent, carrying impulses outwards from the center. Suppose one in bare feet unexpectedly steps on a red-hot coal. Almost instantly the impression is carried to the nerve centers in the spinal cord ; these are stimulated to action and send a sudden impulse along the efferent nerve to the muscles of the leg, which promptly contract and thus retract the injured part. In this way an impression is carried to the center and is thence reflected to the periphery. The intensity of the reflected nervous force bears a close relation to the amount of incident irritation or excitation coming to the center from the periphery. So that even here we have an analogy with the law of physics to which allusion has been made.

Suppose, again, that the eye sees a base ball coming directly towards it at rapid speed ; the impression is quickly carried back, its significance instantly weighed, and an impulse sent along to the proper bodily muscles in time to ensure a sudden timely turn, jump, or stoop, as may appear best. This is reflex action, and it is characteristic of the nervous system.

From what has briefly been outlined, it may readily be seen that we are compactly made of organs and sets of organs, or appa-

ratuses and systems; that these all work in harmony; that their business is to ingest, digest and egest; *i. e.*, maintain life; the change of material passing through the body, and of its own relations; *i. e.*, work; the propagation of itself indefinitely in giving origin to similar organisms; *i. e.*, reproduction. Thus is shown that we resemble the ameba in principle and differ from it only in degree; in fact, each one of us is a huge mass of myriads of ameba; in other words, we are complex, systematic organizations of cells for the purpose of living a comparatively long life, working nearest the highest degree of perfection and continuing ourselves indefinitely by reproduction. *Medical World.*

Dr. C. A. Thatcher, Kingsville, Ohio, says: Three weeks ago I had the worst case of hemorrhage I ever saw. It came from the extraction of an upper left cuspid, one inch and a-half in length. The patient was Irish, six feet two inches and a-half in height. He was not habituated to the use of stimulants. He insisted on the extraction of the tooth, and it, with a lower second molar and an upper second bicuspid on the same side, was removed. They all came very nicely, and with no trouble, and the patient returned to his work. Two hours later he returned with the most marked hemorrhage I ever saw. In stooping to lift something, it seems that he ruptured a blood-vessel. The first step was to apply hot water—as hot as the patient could bear it in his mouth—the clot of blood being removed from the socket from which this tooth was extracted, the hot water being applied with a syringe, washing the cavity perfectly clean. The next step was to apply tannin on cotton, pressing it to the end of the cavity, with little or no good result. The patient fainted from loss of blood. He afterward made the positive assertion that he had lost more than three pints of blood from the time of the extracting till he came for relief. A friend who came in with him insisted on calling in a physician, but I replied that if I could not stop that hemorrhage the man might as well die there without the physician, because he would die anyhow. The next step was to try Monsel's solution of iron, of which a good deal has been said, and of which there has been some condemnation. Monsel's solution of iron stopped that hemorrhage in three minutes and a-half from the time it was applied. I consider it the best remedy on the face of the earth in such a case. I used a compress of plaster of Paris in the cavity, removing it after six hours and a-half without any serious results, and without the return of the hemorrhage. The man returned to his work the next day without any ill feeling. *Cosmos.*

OUR BODY.

(A Complex Cell Aggregate.)

We have learned that cells are anatomical units; that cells, when normally connected, form tissues; that tissues in their entirety form organs, or things that work; that these organs are usually arranged in series to perform certain kinds of work, and are divisible into two classes, called apparatuses and systems. We shall now find that all of these cells, tissues, and organs, together with the arrangement into apparatuses and systems, form one great connected whole, a vast complex organ, or working and thinking machine, called the body. This great and wonderful body of ours is a large organ; for it exists to do work, it is an instrument. Looking on the living thinking engine, and considering its millions of units and their innumerable connections, makes it seem bewilderingly and incomprehensibly complex. The number of facts stagger the understanding. The mind is tired and the student discouraged. It seems that so many facts can never be memorized; but they certainly can, and the incredulous and hopeless query of the learner as to how this is to be done, is met with the statement that the mastery of simple principles and generalizations will reduce the number of facts to within comprehensible limits. What these are will appear. The generalization that all glands are multiple pockets of the mucous membranes on which they open.

The body is a collection of organs, systems, and apparatuses tending to the same ends that are originally found in the bathybius and the ameba and the protameba, *i. e.*, indigestion, egestion, work, growth, and reproduction. The only difference is that man is a highly complex organism. All high organisms are very complex, and this complexity serves to bring them in more conscious relation with other like and unlike organisms. Man is the highest and therefore most complex of all the organisms, and most nearly perfect. The most complex, the highest grade, development we have is in our nervous system. It is the latest development, and in retrograde or downward changes, either in eventual dissolution or in the descending scale of organisms, it is in the main the first to he modified or lost. The interdependence of the various parts is complete, so that cessation of function in some necessarily entails a stoppage in others, and in several instances, as in the nerve center of the medulla, a comparatively minute disturbance wrecks the whole organism.

The body as a whole must be viewed as any of its simplest elements, even as we would in ameba. It ingests, works, grows, egests and reproduces itself. The cells and tissues already described make up the organs, apparatuses and systems of the body. Our ingestion, digestion and egestion is accomplished mainly by the alimentary tract and its appendages, *i. e.*, the digestive apparatus. The food, divisible into carbo-hydrates, fats and albuminoids, enters the mouth and passes down the gullet into the stomach. Carbo-hydrates and fats are acted on in the mouth by the saliva. This action ceases in the stomach where the albuminoids undergo a change. In the small intestine all kinds of food are digested, but the fats and carbo-hydrates are not actively changed. Food is absorbed through the stomach and intestinal mucous membrane. The fat is carried away by the lymphatics (lacteals) to the thoracic duct and thence to the left subclavian vein to the heart. It can be traced in the blood to the lungs, but not through them. The carbo-hydrates and albuminoids are carried to the liver by the portal vein, where they undergo final digestion before being admitted to the main circulation for general distribution. Egestion, or elimination, takes place through the larger bowels, kidneys and lungs, some also taking place through the skin.

The growth of the body is interesting, as is the question why we stop growing when we do. This is readily explained by the changing relative size between the alimentary canal and body from birth to adult age. At first the gut is much too large to supply only the waste of the body, and so all excess goes to additional growth and development. The growth of the body is rapid and overtakes that of the intestines in from twenty to twenty-five years. Then body growth is at a stand-still. For years afterward the intestinal capacity is simply enough to supply waste. Then it deteriorates, as does the body generally ; there is a wearing out. In proportion as the body degenerates more work is required of the digestive tract, and this, also partaking of the general degeneration, is less able than before to meet the increasing strain. In this way the end soon approaches. This is the degenerative phase of life or period of decay. The weakest part of any particular organism or individual usually breaks down first. If the life is a normal one, the individual will eventually die of old age, or senility. The time for this would depend on the inherent quality of each organism as well as the strains to which it has been subjected during its existence. *Medical World.*

HYGIENIC FADS AND THEORIES.

Almost every physician will advise his patients who are predisposed to consumption or subject to catarrhs or rheumatism to wear warm woolen underclothing. That is the central idea of Prof. Jaeger, the founder of a certain system of hygienic underclothing. Yet Dr. Charles E. Page, of Boston, advocates the theory that persons will be healthier if they wear no underclothing at all. He has convinced many, who are now successfully following his rule and would not go back again to the custom of wearing the usual undergarments.

A book recently published by Dr. E. H. Dewey, Norwich, Conn., entitled "The True Science of Living," advocates that we should not eat so frequently, and that we should do without the usual morning meal, breakfast, altogether. Yet we have often been advised by physicians that, especially in malarious climates, we should not expose ourselves to the morning atmosphere before we have taken a warm meal. We are also advised that we should never go anywhere where we are liable to be exposed to contagious diseases without nourishing food in the stomach. The members of the "Ralston Club," of Washington, D. C., who expect to live 200 years, have as one of their principles that one should eat something, even if only a little, every hour, that the stomach should never be allowed to remain empty.

The Esquimau takes large quantities of oil fat and blubber. One of the first things urged on those who are supposed to be going into pulmonary consumption is that they should take plenty of fats—as much as they can digest. Yet a physician some time ago published an article in a medical journal asserting that fats and sugar are almost poisonous to the system, and never assimilated and should never be eaten, even to the cream that exists in milk.

A certain school of vegetarians confidently assert that chlorid of sodium—our own beloved table salt—is a rank poison to the system, and should never be taken unless it may occasionally be indicated for medicinal purposes in very small doses. Yet a Baltimore firm has prepared a remedy for indigestion, to be taken immediately after eating, which consists largely or almost entirely of—salt. They claim (we understand) that people do not customarily take enough salt in their food.

Who shall decide between all these conflicting and confusing theories? Shall we have a national committee of investigation?

Medical World.

GEOMETRICAL RULE IN THE ARRANGEMENT OF THE TEETH

Dr. L. P. Haskell.

As a proof of the fact that nature works according to geometrical rule or law in the arrangement of the teeth, I wish to mention the discoveries of Dr. Bonwill in comparative anatomy, and the result of his investigations, covering a wide field and including examinations of many thousands of skulls, of prehistoric as well as modern races. Dr. Bonwill has discovered the law underlying the formation of the teeth to be that in all perfectly arranged jaws the six anterior teeth forms the arc of a circle, the radius of which circle can be determined by the width of the central, lateral and cuspid teeth it making no difference whether the teeth are wide or narrow. By taking the measurement of the central, lateral and cuspid teeth, and forming a circle of which that is the radius, it will be found that a line drawn through the center of that circle would come through the center of the second bicuspid; a line drawn across the posterior margin of the second molar would coincide with a line drawn across the posterior periphery of that circle. The third molar does not seem to cut any figure in the economy of nature so far as the arrangement of the teeth is concerned. Dr. Bonwill's general law enables him, by having as a basis any single tooth in the upper jaw, to tell with certainty, from the width of that tooth what would be the corresponding width of every other tooth.

I have never found this rule to fail in any natural set of teeth; and acting on that rule I always form a brass disk according to the measurements of the six anterior teeth, and adjust the articulation according to that circle. In the arrangement of artificial teeth I find it an excellent guide; the edge of the circle coming on the cutting edge of the six anterior teeth and also on the first bicuspids.

Dr. Bonwill's law does not apply as to artificial teeth in regard to the center of that circle coming through the center of the second bicuspid; because in artificial teeth it is very rarely, if ever, that one can find a set of teeth where the bicuspids and molars are in proper proportion; and this has been a source of exceeding annoyance to me in the course of my practice. I often find a set of very wide incisors in connection with little, narrow, insignificant bicuspids and molars.

In arranging a set of teeth for an old person whose teeth have

been extracted for many years, the processes are usually absorbed so that there is practically nothing left, and the lower jaw projects forward, its radius seeming to be shortened; therefore it is very difficult to arrange the teeth, as there is no rule to go by and no basis to start from as to the exact position of the teeth.

In arranging the lower set to the upper set I always begin with the second bicuspid, arranging the fronts but partially, the main thing being to secure articulation of the bicuspid and molar, and then the anterior teeth can be articulated in the best way possible. Sometimes they will be found too wide for the space allotted them. Then they can be lapped or crowded in somehow. The main thing is to articulate the bicuspids and molars properly. The chief difficulty in articulating bicuspids and molars is owing to the fact that the articulating surfaces are not made to come together, it being necessary to grind some of them to make them meet. The lingual cusps of the bicuspids and molars should be shorter than the buccal cusps of the lower, and vice versa. I frequently find instances where the lingual cusps of the superior bicuspids or molars are longer than the buccal. I follow Dr. Bonwell's method of using the articulating circle by grinding deep, broad grooves in the bicuspids and molars so as to bring the surfaces together, and I believe that there is no other method that can be followed with satisfaction till it is possible to induce dental depots to furnish artificial teeth more in accordance with nature.

Pacific Journal.

THE USES OF ARISTOL.

Among the agents for the treatment of wounds which modern synthetic chemistry has placed at the disposal of the physician, aristol can justly lay claim to a prominent position. Aside from its employment as a wound dressing, it has been extensively utilized in affections of the skin, in diseases of the nose and throat, in ophthalmology, otology, etc. The *British Medical Journal*, March 9th, 1895, contains an abstract of an article by Gevaert (*Flandre Medicales*, February 21st, 1895), in which this author gives his experience of the use of aristol. He says:

"Aristol, which is an iodin derivative of thymol, is a reddish, inodorous powder, insoluble in water and glycerin, little soluble in alcohol, but soluble in ether and fatty oils. It has been used with success by Eichhoff in cases of psoriasis, lupus, parasitic cutaneous affections, and tertiary ulcerations. In lupus it is said to have given good results, and to have a specific action on tubercle bacillus

Ethereal solutions of 10 per cent sterilize all cultures of microbes excepting the anthrax bacillus and the micrococcus tetragenus. Its insolubility renders its use limited to the same extent as iodoform, over which it has the advantage of producing no toxic effects." Gevaert has used it with good effect in lupus, combined with curetting, and quotes a severe case which he treated in this way, which healed in five weeks, and which has remained healed ten years. He also recommends it in suppurating bony cavities. In cases of otorrhea with small perforation it is dangerous from the liability to block up the perforation and cause accumulation of pus in the middle ear. It is also recommended in burns.

Universal Med. Jour., May, 1895.

ARTICULATING ARTIFICIAL TEETH.

A peculiarity about the lower jaw is fact that the the teeth on the left side are higher and longer and fuller than on the right. In articulation the anterior teeth should be arranged symetrically regardless of the position of the others, for the reason that they give expression to the mouth, and in arranging the upper teeth it is often difficult to get the teeth on the left side far enough back, owing to the lower teeth coming up too high, this peculiarity is confined to the left side and is not the case on the right.

Often, when the teeth are all extracted, the left side of the lower jaw diverges further from the meridian line, and that could be overcome by setting the teeth farther in over the ridge on the left side than on the right. I believe there are more failures from faulty articulation in dentures of full upper plates than from any other cause. The six anterior teeth should never be allowed to meet—a space should be left not only for present but for future changes when in the course of time the teeth and jaw come close together.

A patient should never be allowed to see or examine the denture till everything is fully articulated.

In the use of articulating paper I obtain the best results by getting the patient to bite rapidly up and down instead of grinding on the paper, and the articulation should be so arranged that the pressure will come on the bicuspids and the first molar. I have known of instances where the wisdom teeth or second molar of the lower jaw stood at an angle of 45 degrees, and in the articulation of an upper set those teeth should never be permitted to come together end for end as it will cause crowding of the plates

forward. If the lower teeth are far enough forward to permit it, I recommend the dropping of another tooth behind them from above to throw the crowding backward instead of forward. I believe articulation to be one of the most important branches of successful prosthetic dentistry and the most likely, if neglected, to produce an unfavorable impression on the patient by the teeth not coming together properly. If the plate is found to press on the posterior margin of the mouth I recommend the grinding of the articulation of the last molars rather than the filing or alteration of the plate.

To make an upper denture satisfactory, where there were no lower posterior teeth remaining in the mouth, I recommend putting some in as I consider it as absurd to have a complete upper set with no posterior teeth as to have a two-wheel vehicle with only one wheel, especially as the primary object in inserting artificial teeth is for use. *Pacific Journal.*

FRUIT AS MEDICINE.

Why for ages have people eaten apple sauce with their roast goose and sucking pig? Simply because the acids and pectones in the fruit assist in digesting the fats so abundant in this kind of food. For the same reason, at the end of a heavy dinner, we eat our cooked fruits, and when we want their digestive action even more developed, we take them after dinner in their natural uncooked state as dessert. In the past ages instinct has taught men to do this; to-day science tells them why they did it, and this same science tells us that fruit should be eaten as an aid to digestion of other foods much more than it is now. Cultivated fruits, such as apples, pears, cherries, strawberries, grapes, etc., contain on analysis very similar proportions of the same ingredients, which are about one per cent of malic and other acids and one per cent of flesh-forming albuminoids, with over eighty per cent of water.

Digestion depends on the action of pepsin in the stomach on the food, which is greatly aided by the acids of the stomach. Fats are digested by these acids and the bile from the liver. Now, the acids and pectones in fruit peculiarly assist the acids of the stomach. Only lately even royalty has been taking lemon juice in tea instead of sugar, and lemon juice has been prescribed largely by physicians to help weak digestion, simply because these acids exist very abundantly in the lemon.

Popular Science Monthly.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[*Address all Questions for this Department to Dr. E. N. Francis, Uvalde, Texas.*]

Question 221. *A lady, aged forty-five, had all teeth extracted two years ago. The ridge is very soft and gums so inflamed it is impossible to wear a plate. A plate made fits tightly some days while it is very loose other days. I have tried black rubber. What is the best remedy?*

I would have patient use some astringent mouth wash frequently each day: Listerine, four ounces; tannin, thirty grains; alum (pulverized), ten grains.

After such a treatment of perhaps two weeks (leaving present denture out during the time) take impression and make a denture on gold or aluminum. Continue treatment after denture is inserted.

Clyde Davis, Lincoln, Neb.

Look to the general health of patient and use antiseptic mouth wash. Do not think color of rubber makes much difference, though black would be preferable.

Sometimes a plate without palatine portion works to an advantage.

If any kind of plate irritates gum it will produce inflammation provided general health is not good. *A. Williston Davisson, Atlanta, Ga.*

Reduce congestion of the mucous membrane; obtain a perfect impression; run a model, and from this swedge a gold or aluminum plate, which will probably remedy the trouble.

I do not believe black rubber is better than red. All rubber plates are objectionable, acting as insulators, obstructing the passage of heat and cold, thus producing a congested mucous membrane which is more pronounced in some mouths than in others. *John S. Engs, Oakland, Cal.*

The effect of black or brown rubber would be the same. The supposition is that the patient wears the plate nights. Very few patients can wear a tight fitting plate twenty-tour hours a day and have a healthy mouth.

Should leave the plate out nights and rinse the mouth often with cold water, brushing the entire surface of mouth with a soft brush whenever the plate is removed.

If this does not give a healthy mouth leave the plate out a part of the time during the day. *A. F. Davenport, D.D.S., North Adams, Mass.*

Question 222.—*If too much arsenic is used for devitalizing pulp and should penetrate soft tissues beyond apical foramen, or should accidentally come in contact with gum around tooth, what would be the treatment?*

Should use the ordinary antiphlogistic remedies, especially the hydrated sesquioxid or peroxid of iron to the inflamed tissues, and wait for nature to eliminate the poison. *A. F. Davenport, D.D.S.*

This is certainly a serious accident. The antidote is dealized iron. Should

there be much loss of tissue it is almost certainly followed by loss of tooth and sometimes adjacent teeth. *Clyde Davis.*

Arsenic should be employed only by intelligent dentists who will never use much. In all cases adjust the rubber-dam before making an application of arsenic. I believe tincture of iron has been used to paint the mucous membrane when it is attacked by arsenic. *J. S. Engs.*

I always supposed the apical foramen of a tooth was found imbedded in osseous tissue, which is slow to absorb arsenic or anything else. The membrane covering a tooth is difficult of access, but all dead tissue, be it hard or soft, requires removal and thorough antiseptic treatment of the remaining parts. *A. Williston Davisson.*

Question 223.—*In extracting pulp from upper right lateral, I broke my barbed broach in foramen. I applied oil cassia and sent patient away for a day. Intense pain and soreness followed, apparently caused from zinc chlorid used in pushing gum back. I drilled a small opening beside broken broach into apical space, applied iodoform paste, and patient experienced swelling under right eye turning the eye dark. A sensation of something moving down toward the tooth followed, and three days later a large red swelling appeared over the tooth on the gum. The tooth is very loose. I lanced and obtained nothing but blood. What shall I do?*

Obtund the gum tissues, open to the apex of the root, and if possible remove the cause of the trouble. If all efforts fail to save the tooth, extract as a last resort. *A. F. Davenport, D.D.S.*

The piece of broach must be removed, either through root as a whole, by exidation, or by an opening through process. Think all swelling will recede when the cause is removed. After removal of broach, treat antiseptically. *A. Williston Davisson.*

You had better extract the tooth. The broken end of broach probably caused the trouble, irritating the nerve tissues about the apex of root which communicate with the anterior dental branch of the superior maxillary nerve. *J. S. Engs.*

I would cut in through labial plate of process and amputate the portion of root containing broach, leaving the root smooth as possible, and at same sitting fill root canal to orifice with chloro-percha, putting in cement filling. Treat gum externally as any ordinary wound. A cure is almost certain. *Clyde Davis.*

Dr. B. F. Williams, of Philadelphia, in answer to question for last month, states: "I have never failed to stop hemorrhage, however persistent, by using ice-water, then pure vinegar, and finally Monsell's solution of iron. The ice-water diminishes the caliber of the capillaries, the vinegar acts as a powerful astringent, and the iron as a powerful styptic."

Dr. Cully, of Tacoma, Wash., states, in answer to Question No. 205: "Cut away crown of tooth till direct action is obtained to root canal; cut a small hickory stick to a sharp point, shape the point to correspond to root canal, dip in carbolic acid, insert in root canal till patient begins to flinch, strike stick a quick blow with hammer, withdraw stick, wash canal with warm water, dry out, and it is ready to fill."

Question 224. *In answering a question for me in the* ITEMS, *you remark: "There is nothing new under the sun." Do you believe that?*

This is not exactly in the line of dentistry, and the quotation was used only as a byword or expression, but after reading your question we have been thinking it over seriously, and as our scientific ideas were never developed—if we had any—the following very unscientific facts suggest themselves:

When all the gold in the earth has been converted into forms (we mention this as being used in dentistry) for use or ornament nothing "new" can be formed without the destruction of the old. Nature kindly provides for this in dentistry, even before all gold has been converted into the useful and ornamental. The gold is taken from the earth, converted into convenient form, placed in the teeth by the expert dentist, and if the fillings are not lost or swallowed they in time are interred in the family burying-ground with our patients, and thus one of nature's laws are fulfilled—dust to dust.

"New" worlds may be formed, but it is the destruction of others that form the "new." Tons of matter fall upon the earth in the form of shooting-stars or meteors, and if our earth is naturally enlarged for a brief period, other bodies from which this material is thrown are diminished in size, so that our growth is at the expense of waste or decay of something that has existed in perfection before.

The law of nature is full value returned for benefits received, so these changes go on century after century, seeming waste going on in proportion to all growth, till we in time are obliged to return all we receive, and the same material is used over and over again—it is not new.

All things are adapted to certain combinations, and then follows a cycle of repetition.

The day of creation has passed, the power expended, the forces extinct; we can only remodel or make over and improve that which exists.

We are all a repetition of what has been, and the wonderful discoveries of the nineteenth century are only wonderful to those who have not seen them before. How long will it be before the telegraph will be forgotten as other improvements take its place? How long before the telephone follows suit and becomes known only to history, which in itself is limited to only a few thousand years?

When we reach perfection the forces seem reversed; death, decay, and destruction take place; we begin again in ignorance—like the building-blocks of childhood, we can build only so high when they topple over, and a slow process, with patient effort and labor, is required to replace them.

We can dream of the lost arts and sciences; improve the tops of our trees while decay weakens the roots, but gradually we must begin the struggle, necessitating the toil of ages, to discover things that have existed and which to us seem new.

"Under the sun" covers a universe as well as our little world. Have we always been here? are we so very wise? have we existed before? are we not made up of life and death? are we not building—aye, living—on the bones of our ancestors? Do not others die to give us existence? have we not used, or perhaps invented, somewhere or at some time, the very things that seem so wonderful to us now? Is this earth all; is there nothing beyond and nothing before? *E. N. F.*

PRACTICAL POINTS.

By Mrs. J. M. Walker, Bay St. Louis, Mississippi.

Gutta-percha Fillings.—With dangerous cavities liable to pulp exposure, cleanse them of all decay and fill with gutta-percha, insuring safety till the permanent fillings can be inserted.

R. Ottolengui.

To Mummify Pulp in Inaccessible Canals.—Apply a paste of tannin with equal parts of creasote and oil of cloves.

* * *

Disinfection of Instruments. — Boro-glycerin, combined with sulfate of zinc, affords an agent capable of disinfecting all instruments with no danger of staining the teeth, poisoning the patient, or injuring the instruments. *A. W. Harlan.*

Near Pulp Exposure.—When the pulp is only protected by a thin layer of dentine, cover with oxiphosphate to which creasote has been added, before the paste has begun to set, making it permanently antiseptic and preventing the deleterious effects of phosforic acid on the pulp when in close proximity.

F. E. Howard.

Overcoming Acid Conditions in Pyorrhea.—Great benefit may be derived from the internal administration of a desert spoonful before meals of

℞.—Infusum columbe..... ℥ iv.
Liquor potassa..... ʒ ss.

If the urine indicates a general acidity of the system, give "cream-of-tartar lemonade" as follows; Cream-of-tartar dissolved in boiling water, 1 to 18; add lemon juice, and sweeten to taste. Use freely, till the saliva loses its ropy character.

W. X. Sudduth.

"Painless Extraction."—One-sixth to one-quarter grain of the large crystals of cocain, dissolved in ten to fifteen minims of an antiseptic solution of hydronapthol or boric acid will give better results than any other preparation. *Bergstresser.*

Architect's Cloth.—Architect's tracing cloth makes an excellent substitute for tape in polishing the proximate surfaces of the teeth and fillings. *L. Ottofy.*

Cleansing Paste for the Hands.—To half pound pulverized borax, add one pound carb. soda and half pound fine pumice, with

sufficient glycerin to form a paste. Use in place of soap to cleanse and whiten the hands. *A. C. Hewitt.*

To Retain Loose Lower Incisors in Place. — Carefully adjust a flattened, highly-polished bar of gold to the posterior surface of the teeth, from one-sixteenth to one-fourth inch below cutting edge. To this bar solder fingers of spring gold like those used to hold precious stones in jewelry, leaving the fingers pointed and straight till the piece is adjusted and anchored to the cuspids; then, with pliers, bend the fingers to hold the teeth.

Dr. Payne.

Dickinson's Pulp Capping.—Mix a paste of oxid of zinc and iodoform, with sufficient oil of cassia to disguise the odor, with eugenol and wood creasote to the consistency of putty. This is placed in position with care, and a layer of oxiphosphate of zinc flowed over it. *W. P. Dickinson.*

Root Canal Filling.—When thoroughly cleaned and dried, with Donaldson nerve broach work in up to the apex as much creamy oxichlorid as possible; then drive in tightly a splinter of orange or cedar wood (smaller than the canal) as far as possible, and leave it there. *Dr. Allen.*

Aching Pulp in Deciduous Teeth.—Destroy the pulp, and remove as well as possible from pulp chamber and its extensions. Fill with cotton saturated with iodoform, or with a little oxid of zinc entangled in its fibers. In subsequent trouble this is easily removed. *S. G. Perry.*

Gutta-percha Fillings.—Secure sufficient separation, and prepare the cavity as carefully as if for a gold filling—no retaining points necessary. Touch the cavity walls with copal-ether, varnish, and allow a few moments for evaporation. The sticky surface assists in holding the first pieces of gutta-percha in position. Use gutta-percha of good quality, and be cautious not to overheat. Pack with a warm instrument; and when completed, hold a cold burnisher against the surface to cool. Trim and finish as thoroughly as though gold. When not exposed to attrition or wearin mastication this work gives marvelous results. *I. L. Davenport.*

Pulp Capping.—If the pulp is inflamed apply pepsin on cotton covered with sandarac varnish for twelve hours. Then put on rubber-dam, apply creasote to cavity, remove after half a minute, and dry the cavity. Next to the exposure carefully apply a wafer of gutta-percha, not warmed; burnish it down all around the edges with a heated burnisher, to make it adhere to the

walls of the cavity. Fill with oxiphosphate, and instruct the patient to return at once if trouble ensues. After three months remove sufficient of the cement to insert permanent filling.

W. F. Holt.

To Polish the Ground Surface of a Porcelain Tooth.—Smooth the surface by using an emery disk with the engine, following with a cuttle-fish disk. Then polish the tooth on the lathe with a felt wheel, using pumice as a powder.

J. Van Pelt Wicks.

Cement as an Anchorage for Gold Fillings in Shallow Cavities.—While the cement is yet soft, place mat gold in position and press to place with smooth-faced pluggers or burnishers. This adds remarkable strength to the operation, and the effects of thermal changes are reduced to the minimum. Only very slight retainers are needed. *L. Van Orden.*

Relief of Pain from Exposure of the Pulp.—Apply of

Carbolic acid	20 parts.
Hydrochlorate of cocain	5 "
Liquid vaselin	75 "

A. W. Harlan.

Painless Pulp Devitalization—Place a minute portion of arsenic on the freshly exposed pulp, and over this a minute grain of cocain, and hermetically seal. At the end of a week renew the application if necessary. *N. T. Shields.*

Temporary Denture Replacing the Anterior Teeth.—Take the impression before extracting the teeth. Cut the teeth from the model. Cut out sufficient depth of socket for the artificial teeth, scrape a little for the palate gingival margin of the ridge, and make the plate; then extract the teeth, and insert the plate before any swelling takes place. The gums will heal and settle around the teeth naturally, without inconvenience to the patient.

C. H. West.

Crowning Frail Roots.—Fit a thin platinum band and fill with alloy. When this has hardened, fit a gold crown and set it over the platinum band and crown. *Dr. Stevens.*

Pulp Capping in Deciduous Teeth.—Cut a piece of court plaster of suitable size. Cut a hole in the center large enough to clear the point of exposure. Dampen the sticky side and place in the bottom of the cavity. Over this place another piece of the same size, not cut out in the center. This makes a cap that will neither move nor cause pressure when cement is flowed over it.

D. M. Gallic.

Molar Restoration.—When any portion of the crown is left, adjust a platinum or German silver band, and fill with amalgam.

D. V. Beacock.

Accidental Pulp Exposure.—First sterilize with twenty per cent carbolic acid. Then make a gold or tin cap, fill its concavity with a paste of lanolin, oxid of zinc and iodoform. Invert over the pulp exposure, place gutta-percha next the cap, and fill the cavities with oxichlorid of zinc. *J. P. Geran.*

Pyrozone in the Treatment of Pyorrhea.—In the uncomplicated form, after thorough removal of all calculus, salivary and serumal, from the necks and roots of the teeth, H_2O_2 will be found the best agent, as a mechanical cleanser and antiseptic, for washing out the pockets, bringing the débris to the surface, and putting the parts in hygienic condition. Of the different preparations on the market, McKesson and Robbin's pyrozone is to be recommended for stability and variety of form. The small amount of acid present is readily neutralized by soda. *W. X. Sudduth.*

Buccal Disinfection.—Cleanse the teeth with a brush charged with finely pulverized potassium chlorate, rinsing the mouth well afterward. The potassium chlorate not only has powerful microbicidal properties, but, by provoking hypersecretion of the salivary and mucous glands, contributes to the expulsion of alimentary débris and epithelial and mucous secretions.

Catching's Compendium, D. P. Unna.

Inflamed Gum over Erupting Wisdom Teeth.—Introduce pure alumnol powder underneath the gum. It will be rapidly absorbed by the tissues, reducing the inflammation rapidly without any injurious effects. *T. P. Hinman.*

Pulp Capping.—Dissolve sufficient gutta-percha in chloroform to half fill an ounce vial.

Add—

Oil of cloves	20 m.
Tannin	10 gr.
Carb. acid	20 m.

Seal and shake till satisfied of a perfect mixture. Then open and allow the chloroform to evaporate. There will remain a putty-like mass, which is always ready for application.

G. C. Anthony.

A Matrix for Cement Filling.—There is nothing like celluloid as a matrix when using oxiphosphate in proximal cavities. Let the cement harden with the matrix in place. Slip it out and you have a polished surface as smooth as glass. *Dr. Schulze.*

ITEMS.

Mrs. Dr. Johnson, of Trenton, Mo., has some "os-artificial" fillings in good condition that I inserted in bicuspids twenty-eight years ago. Within the last year I have seen a score of these old "temporaries" that have done good service from ten to twenty years. *J. W. Greene, Trenton, Mo.*

* * *

A good address implies art. There are comparatively few who cannot acquire it, and there are none who can have it without study and self-training. It is not to be taught. It can be developed only along the lines of our own individuality, and when acquired amounts simply to the power of obtruding that individuality on others, in such a manner as to dominate, for the time being, their minds and wills. Good address is essential to business success, and professional and social influence largely depend on it.

* * *

To salicylic acid add glycerin q. s. to make a mass about the consistency of baker's dough. Apply a thick layer of the dough to the tattoo marks and confine it there with a compress and strips of adhesive plaster for one week and then remove. Remove the layer of epidermis over the marks and apply a second batch of the dough and confine as before.

It may be necessary to repeat again, but if the first and second applications are heavy and well-confined you will have no more tattoo marks. *J. W. Mires, M. D., in Med. Brief*

* * *

A CERTAIN TEST.—In 1870 M. Tarnier deposited a sealed package with the Secretary of the Academy of Medicine, Paris, to be opened at any time in certain contingencies; otherwise to be kept unopened for twenty-five years. The package was opened at the end of the time mentioned, and found to contain a piece of bread, which had been perfectly preserved by submitting it to a strong pressure in a hydraulic press. It was said to have been as sweet as any fresh bread, and by steaming it was softened till it was easily masticated. If every discoverer had the same faith in his invention, and would submit it to the same test of time, what a world of trouble would be saved, even though in a very few instances the world lost the benefit of a useful process for a time. *Practitioner.*

Some seem to think there is but one way to advertise, and that is by heralding outright your superior skill, etc. There are better ways of gaining the confidence of the public. If you are a skilful dentist make the people find it out and believe it, not by shouting it in so many words from the housetops or newspapers, but by quietly and modestly gaining the confidence of the people by honest, intelligent advice, by good work and by a true professional bearing toward the world. *J. E. Davis.*

* * *

GOOD COUNSEL.—Young men of an inventive turn of mind should be constantly on the alert, observant in everything. Note where a saving of time or material can be effected by improved methods. If you cannot make two blades of grass grow in the place of one, invent some method to do certain things quicker and better than by present methods. Time is money, and any method by which time is saved has a commercial value. If the operation is performed better and quicker, the commercial value of the method or means enhances accordingly. The simplest inventions are of the most value, comparatively. A recent report from the Patent Office states that the majority of successful patents were for articles that retailed for one dollar or less. *Rural Mechanic.*

* * *

Professor Buckingham, whom we all loved and honored, said once to an Association "We do the best with the material that has been sent us that is possible to do." That may have been true in his day; I doubt very much if it is true to-day. The only point I wish to raise is this: Cannot the colleges of this country turn out gentlemen? If they did, the snub put on my friend Dr. McManus would never have been uttered. Can there not be some restriction thrown out that a graduate will not put up a sign like this, "Hanks yanks teeth?" That is only one instance, and you know it occurs all over the land that men advertise the best set of teeth that can be furnished for five dollars, warranted to last a lifetime. I claim that the colleges can very largely remedy this evil by at once saying, when the fact is brought to their knowledge, that a man who does this sort of thing shall at once have his diploma withdrawn. He may own the diploma, but they can put a brand on him that will make it very unpleasant for any man to assume that position. He gets a diploma and hangs it on the wall, and claims that he is a good dentist and that a good college has qualified him to practice dentistry, and is privileged to do as he pleases. If the dental colleges would put a brand on such men, all such practices would soon cease. *Dr. Stockton.*

NEW LOCAL ANESTHETIC.—Dr. K. L. Schleich, of Austria, produces perfect immunity from pain by subcutaneous injections of a sugar or a salt solution, or of merely cold distilled water. He adds: "The patient may remain perfectly unconscious during the amputation of hand or foot without any of the dangers accompanying general narcosis." The phenomena is explained as follows: Local insensibility to pain is induced by cocain by purely mechanical changes, while cold water and solutions of sugar and salt act mechanically through high pressure and low temperature. Under these influences the blood and lymph are driven from the places operated on to where the pressure is less. The tissues are thus deprived of their supply of blood, and temporary paralysis of the nerves results. *Medical Age.*

* * *

The average sense and intelligence of the public is apt to be in the wrong at the outset, and to be converted to the right only after many days and much tribulation. In other words, our safety and our progress have been the result of a slow, and often reluctant, yielding of opinion by the mass to the superior judgment of a minority. This is merely another way of stating that, where every one has a right to individual opinion, and there are no arbitrary standards of conduct, or of anything else outside the statute law, the mean is likely to fall far short of what is best. Our salvation in every instance of national perplexity has been the effectual working on the public conscience of the leaven of the best Americanism. A comparatively small proportion of the population have been the pioneers in thought and suggestion of subsequent ardent espousals by the entire public.

Robert Grant, in Scribner's Magazine for November.

* * *

In mending broken plates I place on slab, teeth down, with broken edges in perfect contact. Mix and pour on top enough plaster to hold the broken parts rigid. When set, I scrape away the plate on lingual surface right over, and for one-fourth inch on either side of broken edges, till I have cut away at least one-half the thickness of plate along the entire length of fracture; then cut piece of rubber to fit place so scraped (say one-half inch wide), bathe one side in chloroform, burnish down on plate, scrape flask and vulcanize. *H. O. Collier. Forney, Texas.*

[My mode has been similar to the above, except that instead of scraping at the edges half through the thickness of the plate I go entirely through, and instead of bathing one side of the strip of new rubber with chloroform I paint the old rubber where scraped, with chloro-percha.—ED. ITEMS.]

Dr. C. H. Harroun, Toledo, O., says: There is little or no danger of a person bleeding to death from hemorrhage after the extraction of teeth. One day a lady came to his office and began to tell what trouble she had had and what she was going to do, and that if he did anything for her he would have to do it so and so. She said she had had some teeth extracted and had lost thirteen pints of blood. He told her most emphatically that he was the dentist, and that under the circumstances if he had to perform the operation he should do just what he pleased. She began to look around at her husband, but he was evidently one of those fellows who never have anything to say at home, and he took up his hat and went outdoors. Thirteen pints of blood! Gentlemen, there is no danger of bleeding to death from the extraction of a tooth.

* * *

Dr. J. G. Templeton, Pittsburg, says: It often occurs that people who are not of the hemorrhagic diathesis have hemorrhage after extraction. My method of determining whether there is likely to be hemorrhage is very simple. We all know the difference in color between arterial and venous blood. For many years I have been in the habit of watching to see whether any arterial blood came from the socket. If any, I invariably keep the patient in the office for awhile.

In regard to the styptics used, I had never had any experience with the subsulfate of iron; but many years ago I had considerable experience with Monsel's solution of persulfate of iron. I have laid this aside, and for many years relied solely on tannin and gallic acid. The reason why I prefer these to Monsel's solution, is simply that Monsel's solution will arrest the hemorrhage, but it forms a coagulum that is easily perforated by a very small artery pumping against it. It will bore a hole right through. If you stop the hemorrhage with tannin, you have tannate of gelatin, so-called, because the tannin will unite with the fibrin of the blood, and form an insoluble compound; and a small artery may pump against it, and not bore a hole through it. I have been called on many times where physicians had attempted to arrest hemorrhage and had failed. I believe they invariably use the Monsel's solution.

I was once caught out in the country, ten miles from a drug-store, with a case of hemorrhage. There was some alum in the house, and with that dissolved in hot water I made a compress that stopped the hemorrhage. *Cosmos.*

EDITORIAL.

THE NEW YEAR.

Yes, *the* new year; for though many new years have come to most of us, each New Year becomes to us *the* year of years.

How glad I am that I can enter them all with such a bound of youth. I used to think, "When I grow old" the years will grow staid and stalk—too common to be of special interest. Well, perhaps they will, "when I grow old;" but, though yesterday I entered my three-score and ten, I am still looking for, "when I grow old."

Ah, I can fairly feel the atmosphere throb with a new bound as this new year of 1896 comes to me fresh from my Father's hand. These heavenly pulsations so exhilarate my heart beats, dance through my brain, and inspire my spirit, that I really feel I am in the confines of glory land.

O, the glory of living! O, the ecstasy of jumping into a new year! O, the exquisite delight of nearing heaven! If this is growing old, give me more of it.

Roll on ye years of time,
Roll on, if with each gone,
I hear the good old rime,
"'Tis better farther on."

And why should not life be thus? If youth keeps its innocence, and maturity its virtue, and life be the accomplishment of its noble purposes, why should not its normal activities bring joy and contentment, and success—and ever more and more?

Ah, if our frivolous ones, who spend life as a butterfly, could have a glimpse of the sublimity of having a grand life purpose; if our foolish ones, who trample in the mire their strength, their honor, and their true happiness, could know the difference between being a mere sensurous beast and a noble man, they would leave their playground and their fantoms, their dissipations and their excesses, and rise to the responsibilities, and possibilities, and glories of their wonderful nature.

Come, fellows; let the follies and the listlessness, and the vanities of the past suffice, and let us shake ourselves of our evils and be men—dignified, stalwart, successful men. Then, indeed, this shall be a New Year to us, and the world shall hear from us. Slumbering within us are mighty powers smothered by ill-spent days. Let us arise and shine.

THE MIND.

The mind is not only a greater power than instinct, but it is a distinct creation—a real entity—so that we possess a dual nature. We say our physical faculties, and the powers growing out of these, are self-evident, because we see and feel them, and by them can handle, examine and appropriate physical things; and that, therefore, what we are in these respects is beyond question. If we were more thoughtful, examined ourselves more thoroughly, reasoned with more penetration into the subtile and subtle qualities of our being with more penetration, we should see that the existence and wonderful powers of our intellectual nature were as susceptible of proof as our physical organism, and that they were much more sublime in their unfolding. We should find evidence that this intellectual body—the real "*ego*"—had faculties much greater than the physical; eyes more penetrating; hearing more acute; feeling more delicate; taste more esthetic, and powers more acute, complex, capacious and expanding—a distinct nature that can luxuriate on the exhilarating perfumes and delicate fruits and inspiring atmosphere of Heaven. We should find that by these faculties we may appropriate richer possessions, rise to sublimer spheres, and associate with the very angels of God.

And if all this can be said of the intellect, what shall be said of the spiritual nature—the soul? There is no estimate for its faculties; there is no limit for its powers; there are no bounds to its expansion. The very intellect and passions are only faculties of the soul.

We see, therefore, that though our higher, greater and much

more important nature is, for a time, subject to the limitations of our physical organization and mundane condition, it has a body and a sphere, and wonderful faculties and mighty possibilities of its own; and though it is here so intimately associated with the nature, the needs and the activities of the body— and with its sufferings, infirmities and constrained environments—it outgrows it, outlives it and outweighs it in every element of greatness, goodness and sublimity.

The physical, though fearfully and wonderfully made, with marvelous endurance and growth, and possessing amazing powers and aspirations, is perishable; the other is imperishable. The one is limited to the earth, and subject to earthly things; the other lives on triumphantly forever. The physical cannot live without the spiritual, but the spiritual, in its mighty powers and possibilities, is capable of the more sublime existence apart from, than with, the physical.

Such a sublime and immortal entity—the mind—must be a supernatural and distinct creation; its source and its destiny divinity; its final associations, surroundings and sphere of activities heavenly, and its enjoyments, usefulness and growth commensurate with its character.

ABRASION OF THE TEETH, AND THE TOOTH-BRUSH.

There is much scientific explanation (so-called) of the abrasion of the teeth, but in nearly every case it is from the misuse and overuse of the tooth-brush, and still more specially from the tooth-brush and tooth-powder combined.

It is a shame to see the destruction of so many sets of nice teeth from this cause, and that of people who think they are taking special care of their teeth. It is still more specially a shame and a disgrace to the dental profession, because nearly all this sacrifice of beautiful teeth is by order of some of our most popular dentists.

Yes, the great and chief blame is with the dental profession, and the more prominent the dentist recommending such a practice,

the greater the blame and disgrace, because his advice is so implicitly trusted, and so conscientiously and thoroughly followed.

There is no sense or reason in the advice. Too many dentists are like a flock of sheep following a leader heedlessly. If they stopped for one moment to reason on their course, they would be ashamed of themselves.

Suppose we should use such a stiff brush on our flesh or on our nails as many do on their teeth. What would be the result? Their destruction, of course. And how we would laugh at one who excused thonself because thon could not keep thon's skin or nails clean in any other way.*

The teeth need no scouring to keep them clean; they only need cleaning. If a soft brush and clean water is not enough, add a little soap. We have seen "esthetic," "fashionable" people scour their teeth with a stiff tooth-brush and powder so frequently and harshly that their teeth were worn into deep furrows, or the entire outward surface worn nearly to the pulp. Yet some of these very cleanly persons never wash their face properly. They allow the pores of its skin to be all spotted over with minute "black worms," as they are called, and this for fear of "spoiling their complexion." When I told a young lady once that her face was dirty she indignantly resented it; but when I rubbed a portion of it with her handkerchief wet with a little borax dissolved in diluted alcohol and showed her the dirt, and the beauty of the part thus cleaned, she was astonished. Though she had ruined her teeth by excessive scouring, she had not washed her face for six months. A little water and wiping with a soft towel is all it had seen. No wonder the pores of the skin were all full of dirty matter, and that she was "dark complexioned" when she could have had a beautiful, translucent, shining skin.

Dr. Bonwill tells of two wealthy bachelor brothers who came to him for advice for abraded teeth. Their teeth were ruined by

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*Thon is the euphoneous word proposed as a common pronoun to represent persons, to avoid the awkward necessity of using "his or her," "himself or herself," "he or she," etc., as it would be in the above—"who excused himself or herself because he or she could not keep his or her skin or nails clean in any other way." It is an innovation, but why should we reject an innovation when it is a good thing? Why should we not improve our language by a new word when it is so easily done? We follow our leaders in the spelling and use of words as blindly as we follow the pernicious habit of scouring our teeth.

this foolish scouring. They had been advised that their teeth were soft, and that the only remedy was the thorough use of a stiff brush with plenty of powder. What nonsense! They were now so nearly worn to their pulps by this treatment that it was necessary to plate them with gold over their entire labial surface, and this with a skill few dentists possess, and at an expense few patients could afford.

We know that the excuse with these misguided dentists is that these harsh brushes and powder are necessary to neutralize acidity and to harden and polish the teeth. But with the frequent use of simple water and a soft brush no such acid can be found, and seldom even a softening of their surfaces.

The teeth are covered with a skin, as the flesh is, and it should be kept on them with scrupulous care. It is both their beauty and their protection. The tooth-brush, therefore, should be soft, and so constructed that the bristles will enter between the teeth, and reach all their surfaces. Nature itself has provided a tooth-wash that is better than any we can make; it is the saliva, which the system prepares for the very purpose of neutralizing acid and alkali that may be formed in excess. If pathological conditions injure this fluid, and prevent its normal action, we must of course assist it, but this is a rare necessity. Simply keep the teeth clean.

For reputation's sake I have sometimes wished I was a physician, so that my blunders could be buried. This having them come back on me so often is embarrassing. Then, too, if some patients on whom I blundered, would die, they couldn't have their say when I tried to justify myself. It is bad enough to blunder; but it is much more embarrassing to be shown them. The trouble is, we dentists have no place to hide, and cannot hide our patients; we are sure to meet face to face at the most awkward time and in the most embarrassing way, just when it will do the most harm. No; you can't get them to die. Oh, to be a physician!

The only way is to get over making blunders as quickly as possible.

PROF. JAMES E. GARRETSON.

In the life of Prof. Garretson, who has lately gone from us, we have many lessons of courage, perseverance and triumph under unusual difficulties.

As we see such great men looming up before us, we look on them as giants by nature. But really they are like ourselves; therefore, examples to encourage each of us to become giants. There is not so much difference between us by nature as by practice. If we will, we may all be great in some sphere, in some trait, for some purpose. Not a Garretson, or a Black, or a Bonwill, or a Barrett, or a Flagg, or a Taft, or a hundred other giants among us, and yet a giant standing out a distinct individuality, doing something to make the world better and ourselves honorable. Our spheres and characteristics and talents are as different as our names, but God has made us for *something* noble, and we may be suitable for that something. O what digging and discipline and perseverance it requires to bring out and mature what is hidden and dormant within. But they, who are willing to pay the price, find in themselves treasures more precious than all the outside world can bestow. The world sees only the finished character; the furnace and the hammer and the polishers are hidden.

Prof. Garretson was a cobbler in his youth, and a son of an obscure cobbler in Delaware. His attendance, even at the district school, was so short and interrupted, and his means for studying at home so limited, that he came to young manhood an ignoramus, gaunt, awkward and so extremely limited in his sphere and attainments, that he was bashful, backward and stumbling. When he finally determined to be something his friends should be proud of, he was laughed at for his ambition and presumption. Even when he had earned money enough to attend school, he was the laughing stock of his schoolmates. But he stuck to his books, his teachers and his purpose, and finally became the astonishment of his friends, and the admiration of the world.

Soon after leaving college, an old lady came to him for a dif-

ficult surgical operation, attracted by his fame and phenomenal skill, even as a scholar.

"Three hundred dollars, if you please," said the young surgeon. And it was gratefully paid; for it was an operation, at that time, rarely successful. As he took the money, he said:

"I think you have forgotten me."

"I am not aware I ever knew you personally," she replied.

"Do you not remember the rude, rough, ragged son of the cobbler around the corner from your house? It is only fifteen years ago."

"Is it possible you are that dull, stupid, stumbling fellow? I am glad I did not know it before I came, for I should have hesitated to put myself in your hands."

Though rough hewn outwardly, his nature was so delicate that in his first surgical practice the sight of blood and pain in major operations so sickened him, that he turned his attention to dentistry, and graduated at the Philadelphia Dental College. His ungainly appearance and awkward manners and language, however, were so much against him, that the whole first year of dental practice brought him less than fifty dollars; the first nine months only three dollars and seventy-five cents. Yet he persevered till culture made homely features beautiful, and suavity and kindness and the polish of a gentleman, with promptness, exactness and skill, brought him success.

In his lectures and clinics, though always the master of the situation—clear, concise and convincing—Prof. Garretson was as modest as a blushing youth, and as unostentatious as a learner. Though he was a good disciplinarian, and kept his class well in hand, he was familiar, urbane and cheerful. Though he had large classes of varying capacities, he had the remarkable faculty of making each scholar believe he was talking specially to him, and of detecting the least inattention or incomprehension. His scholars idolized him.

We saw him, in the Medico-Chirurgical College, perform a specially difficult operation in the frontal lobe of the skull. Though he was a distinguished anatomist, he had his sectioned skull con-

stantly before him, lest he should blunder. In such operations he was specially pleased with Bonwill's surgical engine.

We were once commending the condensed yet clear style of his work on Oral Surgery, when he replied: "O, there is little originality in books. We learn and borrow of each other. And as for its style and method, just look here and see how I am preparing for a new edition. As I catch a good idea from any author, or even from a conversation, or from reflections during my own lectures, or clinics, or private practice, I dot them down where I think they belong, and thus prepare my books for the press. I have already caught one or two ideas from you, and shall remember to put them in place. It will not do to have too stiff a style, or too elaborate a plan, even in a book. The main thing is to have the facts stick out very prominently."

All his life he was a studious scholar, a close thinker, and a laborious worker. Even while he was getting the Medico-Chirurgical College on its feet, and occupying two or three chairs for the want of the means to hire more professors, and all this time in the midst of a large private practice, he had outside classes in languages and on scientific and professional subjects.

His sudden dropping out of such a varied sphere—especially as Dean, and the most active worker in the Philadelphia Dental College—has made a void which will take three or four of our ablest men to fill.

Dr. Gustavus North, a prominent dentist of Springville, Ill., and Mayor of the city, and professor in the Northwestern Dental College, has lost his lovely, intelligent and faithful wife.

The death of a husband or a wife is not uncommon, and occasionally it is a blessing to the living or the dead. A time since we were condoning with a celebrated dentist on the death of his wife, when he said: "O, it's little loss; she was never much help to me." Many times before her death, we had occasion to believe she had reasons to look pleasantly for death, as a release from him. This was a sad case of mutual incompatibility, and of

masculine domination, self-conceit and consummate selfishness and intolerance.

But when, as with Professor North and his darling, death unravels the exquisitely tender rootlets of two hearts that have been growing together closer, and tighter, and more lovingly for a quarter of a century, the parting is a cruel, excruciating and inexpressible calamity. *I know it*, friend North; I sympathize with you. But *I know*, too, that when I was crowded and crushed down into the darkness of the grave, I could look up and through the pitch darkness see the glory of heaven more clearly than ever before.

Our "Practical Points," by Mrs. J. M. Walker, are attracting much attention, and have from the first of their publication. Mrs. Walker has used uncommonly good judgment in her selections and in her condensations. The fact that of the more than six hundred points that have appeared, only two have been openly criticised, while very many go the rounds of the journals without either she or the ITEMS getting any credit, speaks well for their accuracy, popularity and acceptability.

Of course, it is not within her province to test the suggestions offered. Her only guide is her own judgment as to the standard of authority cited, and a little theoretical knowledge of the requirements of the case. We quote many things in the ITEMS, the wisdom of which is not of our own demonstration. But of all our writers, or even of our own statements, there are none more free from errors than these "Practical Points."

Life is largely what we make it. Whether old or young, rich or poor, high or low, we are happy or miserable, much as we will it. We have all seen the rich unhappy, and the poor happy. We have seen the aristocratic rolling in unrest, and the lowly in luxuriant contentment. I have been young and now I am old, yet I have seen few who could not be happy, if they would, for happiness depends not so much on the situation as on the disposition.

HINTS.

We are glad to see that our dental colleges are giving increased attention to manipulating skill.

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There are forty-six dental colleges. Three thousand dental students matriculated last year. Seven hundred and fifty dental students graduated last year.

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For some operations it is desirable to have the oxiphosphate set more slowly than usual; the least sprinkling of finely pulverized borax will do it. If you wish it to set rapidly use a small part of a drop of hydrochloric acid.

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Is it not well to encourage dental students to seek practica work during the interum of college life? It gives skill, demonstrates theories and confirms facts; and they return to college better prepared to understand what they are taught.

* * *

Education in dentistry should be preceded by a better general education than is now required. Our professional standing demands scholars as well as mechanics—refined, esthetic gentlemen, the education of the whole man, as well as the ability to answer a few technical questions.

* * *

It is the short and pithy communication that suits the editor and also the reader. When you write, aim to get the facts in small compass. What you have to say, say to the point. The communication to-day from one of our readers is a good criterion. For brevity and withal a plain statement of the case it is commendable.

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At the Philadelphia County Medical Society, November 13th, Prof. Theophilus Parvin demonstrated the new advancement in the methods of producing deep and extensive local anesthesia developed by Prof. Schleich, of Germany. The method consists in the injection deep into the tissues of a solution consisting of one-quarter part morphin, one part cocain, two parts common salt and one thousand parts pure water. Prof. Schleich performs capital operations—amputations, removal of tumors, etc., under this local anesthesia. Prof. Parvin allowed his arm to be deeply cut and sewed up as a demonstration before the Society.

FOR OUR PATIENTS.

AN ODE TO MISERY.

My toothache! 'Tis of thee,
Dread pain of misery,
Of thee I groan:
Pain that my nerves most dread,
Pain for which tears are shed,—
For my poor aching head
Let grief be shown.

Oh, where can peace be found,
When aching teeth abound
To give me hell?
Yes, pain of hell I feel,
And fiends of hell now steal
Within, and make appeal
My life to sell!

Oh quickly give relief,
Or in my hellish grief
I shall be lost—
I see an angel coming!
It is a dentist running
To scare away this humming
Of hell's dread host!

Ha, ha! Blest skill divine!
How soon relief is mine,
When he appears!
All fear I now dismiss,
I am in heavenly bliss;
For heavenly balsams kiss
All pain away.

Welch.

COARSE FOOD.

Dr. E. T. Darby, Philadelphia.

It is to be presumed that the ancient, as the modern Egyptians, lived on a character of food requiring a great deal of mastication. There was great abrasion on the masticating surfaces of the teeth, but absolute freedom from caries. In the hundreds of skulls I examined, many of which I dug out with my own hands and took the bandages off and exposed them to view for the first time after four thousand years, I did not find a single instance of

any evidence of caries. In the modern Egyptians, I examined the chiefs and guides we took with us, and found the same character of abrasion, with absolute immunity from caries.

The food of the ancient Egyptians was probably ill prepared and coarse in character, consisting mostly of cereals, and the food of the modern Egyptian is of the same character. He lives on barley and beans, ground together, and made up into a kind of paste. It is so coarse that it requires a great deal of mastication before he can swallow it. I ate some of the bread made from it, and it was so coarse that it was like chewing wheat or cracked corn, which you could have swallowed equally well.

Those people have good teeth; they could not be otherwise, because the food on which they subsist, and which the phosphates and carbonates largely predominated, would naturally build up good teeth and bone, and the mastication required would keep them clean and healthy. I have no doubt that is why the ancient Egyptians had better teeth than we have, and why the modern Egyptians have better teeth than we have.

I really believe that if we could change our whole character of living, in diet and food, and have food that requires constant and prolonged mastication, we should have better teeth. I said to a mother, yesterday, who brought her little girl to me, thirteen years of age, with teeth going all to pieces, two exposed pulps in the bicuspids within six months—I said, "What does this child eat?" "Why," she said, "she eats what other children eat." I said, "What does she eat?" "Well," she said, "she eats oatmeal with sugar on it. She will not eat oatmeal unless it has sugar on it, and a great deal of it." I asked if she ate brown bread; she answered, "No, she likes white bread best, and the whiter the better." I asked if she ate meat; she answered, "Yes, sir; a great deal of meat." The child was living on food carefully prepared, requiring hardly any mastication or use of the teeth at all, and food, too, that was probably of the character that would readily and quickly undergo fermentation in the mouth.

It is a lamentable state of things. I don't know where we are going to. The character of teeth will probably be modified to suit the character of food, and the generations to come will have a kind of teeth suited to the food, but I fear they are going to be pretty poor teeth if we go on as we have been going for the past fifty or a hundred or two hundred years, having our food prepared for us and leaving nothing for the teeth to do; the structure

of teeth is not going to be better, but worse, till we go to the foundation of things and change the whole character of our food.

Cosmos.

ABRAHAM LINCOLN'S VIEW AS TO THE SORT OF PRAYER THAT IS THE MOST SPEEDILY ANSWERED.

At the commencement exercises at Summitville the class address was delivered by Benjamin F. Phemister, one of Van Buren's teachers, who illustrated the spirit of his subject in the following story of Lincoln:

"On the first day of January, 1864, while a blinding snow storm swept with untold violence through the Northern and New England States, while thousands of our brave defenders were suffering on the gory fields of the South, a man, tall and gaunt, and homely, was seen standing in Pennsylvania avenue in the city of Washington. A woman with her head bared to the hurricane of heaven; with her feet hardly protected from the frozen ground; with her gown tattered and torn, saw him. She, supposing him to be a minister of the gospel, ran to him, and falling at his feet, addressed him thus:

"'Oh, sir! If you are a minister of the gospel; if you serve the God who fed Elijah by ravens and Israel with manna, pray to Him to provide me a shelter from the storm and food for my poor starving children! I am a widow. My husband sleeps in the bloody bosom of Gettysburg. I'm sad and forlorn. Oh, pray to the Master till He hears my sad cry, that He may shelter and feed us, or pray that we may die.'

"The tall, ugly man, with his heart overflowing with sympathy and his eyes flooded with tears, extended both his hands to the dirty kneeling woman, and said: 'Woman, get up; you are mistaken. I am not a minister of the gospel. Jehovah never appears to hear my prayer. For four long years I have been praying for the restoration of our Federal Union and the cessation of this cruel bloody war. Not till a petition was sent to the States in rebellion in the form of two of the most magnificent armies that ever shouldered a musket, under the guiding hands of Generals Grant and Sherman was there ever the remotest resemblance of an answer. My prayers have finally been answered through the instrumentalities of these two armies under the matchless and daring skill of these two generals. Now if I had any idea that prayer

would shelter, feed and clothe you I would bow down, but I think the best prayer I can make in your behalf is a prayer to that groceryman on yonder corner.'

"Suiting the generous act to the kind and sympathetic words, that ugly-beautiful man took from his pocket a small order book and wrote:

"WASHINGTON, January 1st, 1864.

"MR. GROCERYMAN.

"*Sir:*– You will please supply the bearer $25 worth of provisions, as she may direct and choose, and charge the same to

"Yours truly, ABRAHAM LINCOLN."

Anderson Democrat.

COMPOSITION OF THE TEETH.

The teeth are composed of four principal parts—enamel, dentine, cement and pulp.

ENAMEL.—This constitutes the cap, outer covering, or occluding surface of the tooth. It is the hardest tissue in the animal body. Its great density admirably adapts it to the purposes of mastication of hard substances. The enamel is easily distinguishable from the dentine with the naked eye by its clear, lustrous and somewhat translucent appearance.

DENTINE.—The dentine forms the principal constituent of the tooth. It is situated under the enamel, and is permeated by a great number of minute canals, which connect with the pulp chamber. It is a hard elastic substance, with a yellowish tinge, and is slightly translucent.

CEMENT.—This forms a thin covering for the surface of the root of the tooth, and extends from its neck to the apex.

PULP.—The pulp is a soft tissue, occupying the pulp chamber, which is an elongated canal, wide at the crown and narrow at the root. It runs longitudinally through the center of the dentine. The pulp contains the nerves and blood-vessels of the tooth. It is the vital part, and sends forth minute fibers of living matter through the microscopic canals of the dentine, to nourish and endow the tooth with sensation. *Bell's Mouth and Teeth.*

PUCK.—"Friend, I'm told that most prescriptions cost little or nothing to make up."

DRUGGIST.—"Yes; but we charge for deciphering the penmanship and translating the Latin." *Medical Journal.*

THE TREATMENT OF HEADACHES.

Dr. C. C. Crolly, of Pleasantville, N. Y., makes the following suggestions in regard to the treatment of a large number of headaches, such especially as are associated with a uric acid diathesis.

I treat headaches with the greatest success as follows; in fact, I never knew my method to fail: One teaspoonful extract of malt (with a few drops of dilute hydrochloric acid, to stop fermentation) after meals. This will digest the starchy food. Five to fifteen drops of fluid extract cascara sagrada, if constipation is present, just enough for one evacuation. Half to one teaspoonful phosphate of soda three times a day. This can be continued indefinitely, without danger, and is more successful than salicylic acid. It is equally as good in acute rheumatism.

When phosphate of sodium is taken internally, there are formed in the urine, while it is descending through the lumen of the uriniferous tubules, by the chemical union of the uric acid with the salt and the decomposition of the two, an acid urate of sodium, and an acid phosphate, the di-hydrogen phosphate, and in this way does the patient get rid of his rheumatism, his headache, neuralgia, or other attacks dependent on too great a quantity of uric acid. *The Pharmaceutical Era.*

There are 555 churches in the city of New York, and more than 8,000 places licensed to sell beer and other liquors. The disproportion is even more marked in certain localities. In the district between Broadway and the Bowery, Canal and Houston streets, there are 28,266 people, only 3 churches and 179 saloons. Between Essex street and the Bowery 49,000 people live, and in this section there are 5 churches and 237 saloons. In the entire city there is one saloon for 240 inhabitants and 1 church for 3,400 inhabitants. There are not enough churches to provide sittings or even standing room for the adult population. There are more than enough saloons to supply all the needs of the metropolis, and these needs are large, for there are 4,600,000 barrels of beer drunk here in a year. This is at the rate of two and a half barrels for every man, woman and child in the city. New York has more saloons than any other city in the country. She has considerably more than five times as many as Philadelphia, though her population is not twice as large.

NOTICES.

The following are the officers of the San Francisco Dental Association :

President, Frank C. Pague ; Vice-President, W. B. Sherman ; Recording Secretary, Geo. N. Van Orden ; Treasurer, W. A. Knowles ; Corresponding Secretary, Mayo A. Greenlaw ; Librarian, L. Van Orden.

* * *

At a meeting of the General Committee of the Pacific Coast Dental Congress, held October 30th, it was resolved that the Congress meet in August, 1897, and that the American and Southern Dental Association be invited to meet on this coast in San Francisco at the same time, and hold a joint or separate sessions as may seem best. *H. G. Richards, D.D.S., Secretary.*

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INTERSTATE DENTAL MEETING.—A meeting of the General Executive Committee of the Interstate Dental Meeting was held in Kansas City, at which each of the four States (Iowa, Nebraska, Kansas and Missouri) was represented, and the following action taken : The place and time of the meeting was fixed at Excelsior Springs, Mo., June 23d–26th, 1896.

Dr. Henry J. McKellops was chosen Supervisor of Clinics, to be assisted by Dr. L. K. Fullerton, Iowa ; Dr. O. M. Heustis, Nebraska ; Dr. C. B. Reed, Kansas, and Dr. H. S. Lowery, Missouri.

Much enthusiasm was reported from all the States, and it is believed that this will be one of the greatest dental meetings ever held in the West. *S. C. A. Rubey, Secretary.*

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A treatise on "Diseases of Children's Teeth," by R. Denison Pedley, of Edinburgh, England, is a very timely work. It is quite exhaustive, containing 260 pages. The whole subject is treated in a masterly manner, and will be a fine book for the professional library of dentists ; still better, if it is left on the center table. Its section on irregularities is specially full ; much attention is also given to dental hygiene and restorative treatment. It may be had of The Wilmington Dental M'f'g Co., Philadelphia.